The relationship between self-schema, illness beliefs, experiential avoidance and psychological distress in individuals with psychosis.

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ABSTRACT

Background: This study investigates psychological processes associated with distress in individuals who have experienced psychosis. Previous research has demonstrated that negative self-schema and illness beliefs may contribute to distress within this population. However, there is increasing interest in the use of acceptance-based psychological interventions, which view acceptance of psychotic symptoms as core to the enhancement of psychological well-being. Conversely, such approaches view experiential avoidance as a key contributory factor in psychological distress. This study aims to explore the relationships between self-schema, illness beliefs, and experiential avoidance, and to investigate the influence of each of these factors on psychological distress. It is hypothesised that experiential avoidance will mediate the relationships between negative self-schema and distress, and between illness beliefs and distress.

Method: Eighty-four individuals who had experienced psychotic symptoms participated in this study. A battery of measures including the Brief Core Schema Scales, Personal Beliefs about Illness Questionnaire-Revised, Acceptance and Action Questionnaire-II and Clinical Outcomes in Routine Evaluation, were administered in an interview-based format to each participant. Data were analysed using path analysis, an extension of multiple regression.

Results: A number of significant direct and indirect relationships between the variables were demonstrated by the data. Negative self-schema, illness beliefs and experiential avoidance were all significantly associated with distress, although the strongest relationship was between experiential avoidance and distress. Data did not support the hypothesis that experiential avoidance mediated the relationship between negative self-schema and distress, and only partial support was found for its role in mediating between illness beliefs and distress.

Discussion: Results indicate that experiential avoidance may be a stronger predictor of distress in individuals with psychosis than negative self-schema or illness beliefs. Clinical and theoretical implications are discussed.

1 INTRODUCTION

1.1 Overview

This study aims to explore psychological factors associated with distress in individuals who have experienced psychosis. The presence of distress is common within this population and can be associated with a range of negative outcomes. The current study aims to investigate the role of schemas, beliefs about psychosis, and experiential avoidance in accounting for distress in this population. It will also examine the interrelationships between these factors. Schemas and beliefs are central targets for cognitive therapy, and experiential avoidance is a key process described in acceptance-based treatment approaches. Experiential avoidance refers to an unwillingness to experience negatively evaluated internal experiences. There is a lack of knowledge about the relationships between acceptance and cognitive based processes within this population, therefore the current study will contribute to understanding and knowledge within this area.

1.2 Psychosis

1.2.1 What is psychosis?

The term psychosis covers a range of psychiatric disorders, the core symptoms of which include delusional beliefs, hallucinations and other severe thought disturbances. The most common and perhaps well known of the psychotic disorders is schizophrenia (Birchwood & Jackson, 2001). However, other diagnoses such as schizoaffective disorder, bipolar affective disorder, delusional disorder and psychotic depression may also be included within the category of psychotic disorders.

A delusional belief can be described as 'a false belief based on incorrect inference about external reality that is firmly sustained despite what almost everyone else believes and despite what constitutes incontrovertible and obvious proof or evidence to the contrary' (American Psychiatric Association, 1994, p.765).

A hallucination can be defined as 'a sensory perception that has the compelling sense of reality of a true perception but that occurs without external stimulation of the relevant sensory organ' (American Psychiatric Association, 1994, p.767). Hallucinations may occur in any sensory modality, but in schizophrenia auditory hallucinations are considered by far the most common and characteristic (American Psychiatric Association, 1994).

Thought disorder or thought disturbance typically involves 'incoherence, derailment, and other forms of marked disorganization of speech' (Nuechterlein & Subotnik, 1998, p.18). This disorganisation or incoherence of speech is conceptualised as reflecting an underlying disorder in the organisation of thinking rather than a language disorder.

1.2.2 History of psychosis

A major step in the categorisation of psychoses was taken by Emil Kraepelin, a German psychiatrist, who in 1896 proposed dividing functional psychoses into two categories, that of 'manic-depressive insanity' and 'dementia praecox' (as cited in Berrios & Hauser, 1988). Kraepelin described symptoms of dementia praecox as including hallucinations, delusions, inappropriate emotional responses, stereotyped motor behaviour, attention difficulties, flattened affect and emotional dysfunction (as

cited in: Bentall, 2003; Davison & Neale, 1998; Lavender, 2000). The category of manic-depressive insanity was used to group together all mood disorders, including unipolar depression (as cited in Bentall, 2003). However, it was essentially his views regarding outcome that drove the division between the two disorders. Kraepelin considered that manic-depressive insanity had a fluctuating course with frequent relapses, but full recovery between episodes, whereas he described dementia praecox as having an early onset and following a chronic, deteriorating course (as cited in: Davison & Neale, 1998; Lavender, 2000).

The work of Kraepelin was developed further by Swiss psychiatrist, Eugen Bleuler. Bleuler differed from Kraepelin in that he held a more favourable view regarding the outcome of individuals displaying these symptoms (as cited in: Boyle, 1990; Lavender, 2000). Bleuler did not consider that the illness always resulted in mental deterioration, therefore disputing that it was a dementia. In addition, he observed that the onset of the illness could sometimes occur in later life, thus challenging the early onset that had been proposed by Kraepelin (as cited in Bentall, 2003). Due to this, in 1911 Bleuler introduced the term 'schizophrenia' to replace Kraepelin's dementia praecox (Bleuler, 1911/1950).

In addition, Bleuler introduced the concept of primary and secondary schizophrenic symptoms and considered the four primary symptoms of schizophrenia (known as the four A's) to be abnormal associations, autistic thinking and behaviour, ambivalence, and abnormal affect (as cited in Buchanan & Carpenter, 2000). He considered the loosening of associations between thought processes, a form of thought disorder, to be the central symptom of the illness (as cited in: Buchanan & Carpenter, 2000; Wing,

1995). Bleuler considered that other features of the illness, including hallucinations and delusions, were secondary phenomena (as cited in Pantelis, 1996).

1.2.3 Distinction between 'madness' and 'sanity'

The work of Kraepelin and Bleuler has been criticised for assuming that there is an unambiguous division between the psychologically healthy and the psychologically disturbed (Bentall, 2003). This criticism can be said to be true of psychiatry in general since the history of psychiatry has been driven by attempts to seek a clear distinction between abnormal and normal behaviour. However, such a division can be seen as arbitrary, and simply reflecting social and cultural interpretation (Bentall, 2003).

The extent to which certain types of behaviour and experience are classed as evidence of insanity varies significantly according to cultural beliefs and customs. Bentall (2003) highlights this point by stating that 'it just might be possible to be mad in one culture but at the same time sane in another' (p.132). Even within Western society, disputes regarding the boundaries of madness and sanity have existed since the earliest days of psychiatry, and have been seen to shift with time, in accordance with changes in culture. Leff (2001) defines culture as encompassing 'everything that has been constructed or devised by humankind as opposed to those things that stem directly from the fact that human beings are biological systems' (p.303).

The notion of psychotic symptoms being socially constructed can be usefully highlighted by the distinction between delusional and normal beliefs. Bentall (2003) states that whether a belief is classed as delusional or not is a matter of consensus. In other words, if enough people within a culture share a belief, then it is not considered

a delusion. This point is emphasised within the American Psychiatric Association's definition of delusion, which states that a delusion should not be one that is ordinarily accepted by other members of an individual's culture or subculture (American Psychiatric Association, 1994). This definition highlights that a belief which is an article of religious faith, should therefore, not be considered a delusion.

1.2.4 Continuum of 'normality'

It has been reported that a sizeable proportion of the general population experience hallucinations, or unusual or paranoid beliefs (Olfson *et al.,* 2002; Romme & Escher, 1989; Tien, 1991; Verdoux *et al.,* 1998). However, individuals who experience these symptoms do not necessarily present to mental health services or meet the diagnostic criteria for a mental disorder (Eaton, Romanoski, Anthony & Nestadt, 1991; Romme & Escher, 1989; van Os, Hanssen, Bijl & Vollebergh, 2001). In fact, it has been reported that only around a third of individuals who hear voices, actually experience distress, impairment of functioning, or are troubled enough by their symptoms to seek help (Romme & Escher, 1996; Tien, 1991).

Romme & Escher (1996, 2000) found that it was not necessarily level of symptom severity that differentiated between those individuals with a psychotic disorder, and those within the general population who heard voices. It has been proposed that a key factor in distinguishing whether individuals come into contact with mental health services as a result of hallucinations, is the level of distress that such experiences cause them (Romme & Escher, 1993).

These findings suggest that rather than a categorical distinction between normal and abnormal experiences, psychotic experiences are best conceptualised as existing on a continuum with normal beliefs and experience (Bentall, Jackson & Pilgrim, 1988; Strauss, 1969; van Os, Hanssen, Bijl & Ravelli, 2000). This challenges the predominant view in psychiatry over the last century, that psychotic symptoms are unique signs of biological pathology, 'ununderstandable' (Jaspers, 1913/1963), and discontinuous with normal experience (Fowler, Garety & Kuipers, 1995).

1.2.5 Reliability and validity of schizophrenia

Although the term schizophrenia has been in use for over a century, it is a term that has attracted much controversy and major concerns remain regarding the validity of the concept (Bentall, 1990, 2003; Bentall *et al.,* 1988; Chadwick, Birchwood & Trower, 1996). Despite the significant contributions that both Kraepelin and Bleuler made in the field of schizophrenia, it is claimed that both made the mistake of taking the validity of schizophrenia for granted, and as such did not provide any supporting evidence for the existence of the concept (Boyle, 1990).

It is argued that the cluster of symptoms that define the diagnosis of schizophrenia can be present in individuals who do not meet the diagnosis, as well as appearing in other psychiatric disorders (Bentall *et al.,* 1988; Chadwick *et al.,* 1996; Kingdon & Turkington, 1998). It has also been said that there is no single common symptom that is present in every individual who has a diagnosis of schizophrenia (Chadwick *et al.,* 1996). Arguments such as these undermine the construct validity of schizophrenia and challenge the view that it is a single diagnostic entity. In addition, the predictive validity of the term has been questioned, and it has been claimed that the diagnosis is

limited in its ability to predict outcome and response to treatment (Bentall, 1990; Fowler *et al.,* 1995; Kelly, Murray & van Os, 2001).

Further to concerns regarding the validity of schizophrenia, the reliability of such a diagnosis has also previously been demonstrated as being poor (Bentall, 2003; Kuriansky, Deming & Gurland, 1974). Earlier studies found that psychiatrists were often inconsistent in assigning individuals a diagnosis of schizophrenia (Beck, Ward, Mendleson, Mock & Erbaugh, 1962; Kuriansky *et al.,* 1974) and prevalence rates of the diagnosis also varied significantly between different countries (Birchwood & Jackson, 2001; van Os, Galdos, Lewis, Bourgeois & Mann, 1993). Differing diagnostic practices between countries were thought to be responsible for discrepancies in prevalence rates, and as a consequence, attempts were made to standardise the criteria for diagnosing schizophrenia, and other psychiatric diagnoses in general.

The Diagnostic and Statistical Manual (DSM) published by the American Psychiatric Association and the International Classification of Diseases (ICD) published by the World Health Organisation, are currently the most widely accepted classification systems and represent such attempts to improve the reliability of psychiatric diagnoses. The latest editions of these diagnostic classification systems (DSM-IV published in 1994 and the ICD-10 published in 1992) have refined earlier criteria and although there are differences in some of the diagnostic criteria for schizophrenia, the two systems result in similar prevalence rates (Lindström, Widerlöv & von Knorring, 1997) and a good level of agreement (Peralta & Cuesta, 2003). However, although there is good evidence to suggest that the reliability of diagnosing schizophrenia has

improved, due in part to the use of clearly defined diagnostic criteria, this does not necessarily equate to improved validity, and as previously outlined, problems with the diagnostic validity of schizophrenia still remain.

1.2.6 Symptom approach

The poor validity of diagnoses such as schizophrenia, has led to a shift towards focusing on individual symptoms rather than traditional diagnostic categories (Bentall, 1990; Bentall *et al.,* 1988; Persons, 1986). It has been stated that 'there are far too many differences between patients who have the same diagnosis and too many similarities between patients who have a different diagnosis to make a clear differentiation between diseases possible' (Romme & Escher, 2000, p.127). It is argued that the investigation of individual symptoms, such as hallucinations and delusions, is more likely to improve our understanding of the nature of underlying psychological processes (Bentall *et al.,* 1988; Lavender, 2000; Persons, 1986).

1.2.7 Psychological interventions for psychosis

Psychological interventions for individuals with psychosis were initially based on psychodynamic theories (Wykes, Tarrier & Lewis, 1998). However, such treatments failed to demonstrate efficacy (Kingdon, Turkington & John, 1994; Scott & Dixon, 1995; Sellwood, Haddock, Tarrier & Yusupoff, 1994), and with the advent of antipsychotic medications in the 1950s, interest in psychological therapies declined for this client group. Despite the effectiveness of antipsychotic medications, it is widely acknowledged that a significant proportion of individuals with psychosis continue to exhibit distressing and disabling psychotic symptoms even when adhering to these medication regimes (Bentall, 1996; Fowler *et al.,* 1995; Kingdon *et al.,* 1994;

Sellwood *et al.,* 1994). Therefore, the value of adjunctive treatments to augment the effectiveness of medication has become increasingly recognised.

The availability of psychological interventions for individuals with psychosis has increased extensively over recent years. Although it is beyond the scope of this study to give a detailed history of all psychological interventions for this client group, it is useful to highlight some key differences in the primary focus of some psychological approaches.

One area of focus for psychological interventions has been improving the functioning of individuals with psychosis in a number of different domains. Such approaches include family therapies, illness education and management, relapse prevention, social skills training, cognitive remediation and coping strategy enhancement (Kingdon *et al.,* 1994; McGorry, 2004; Tarrier, 2002; Tarrier, Harwood, Yusupoff, Beckett & Baker, 1990; Turkington, Dudley, Warman & Beck, 2004). These approaches are primarily concerned with increasing an individual's adaptation to the illness experience, and involve a combination of techniques depending on the specific approach.

Another key target of psychological interventions has been the psychotic symptoms themselves. Such approaches involve the use of cognitive and behavioural strategies in order to undermine the conviction, pervasiveness and intensity of hallucinations and delusions (Rector, 2004). These approaches have disputed previously held ideas regarding psychotic symptoms not being amenable to reasoning (Chadwick *et al.,* 1996; Kingdon *et al.,* 1994). Therapeutic techniques include developing alternative

explanations for symptoms, and empirically testing beliefs and interpretations (Chadwick *et al.,* 1996; Turkington *et al.,* 2004; Turkington, Kingdon & Weiden, 2006).

More recently, psychological interventions have developed which highlight the importance of an individual's relationship with their psychotic experiences, and emphasise acceptance rather than modification of symptoms (Baer, 2003; Chadwick, 2006). A key therapeutic technique within such approaches is the use of mindfulness skills.

It has been suggested that reduction of symptoms may not always be the most desirable outcome from the individuals' perspective (Lobban, Barrowclough & Jones, 2004) and that the ultimate aim of all psychological interventions should be to reduce the distress associated with psychotic symptoms (Chadwick, 2006; Chadwck *et al.,* 1996; Morrison, 1998). Psychological distress is thought to contribute significantly to the resultant impairment for the individual (Tarrier, 2005) and therefore, there has been a move towards viewing clinical problems in terms of the level of distress they cause the individual and placing distress, rather than symptoms, as the focus of therapy (Chadwick, 2006; Chadwck *et al.,* 1996).

1.2.8 Distress and psychosis

The presence of emotional distress has been found to be common in people with psychotic disorders (Birchwood & Iqbal, 1998; Birchwood, Iqbal, Chadwick & Trower, 2000; Rooke & Birchwood, 1998). Although distress and emotional disorders have long been acknowledged within this population, it has been suggested that such

co-morbid symptoms have often been overlooked in psychological research (Birchwood, 2003; Tarrier, 2005). This neglect may, in part, be due to the common perception that distress is an inevitable consequence of the experience of psychosis (Birchwood, 2003; Birchwood, Iqbal & Upthegrove, 2005). However, research has demonstrated that distress can occur independently of psychotic symptoms and for some individuals, several months after remission of acute psychotic symptoms (Birchwood, Iqbal *et al.,* 2000).

Distress in this population has been associated with a range of negative outcomes, including increased risk of suicide (Addington & Addington, 1992; Caldwell & Gottesman, 1990; Jones *et al.,* 1994), relapse (Goldberg, Schooler, Hogarty & Roper, 1977, Johnson, 1988) and exacerbation and maintenance of psychotic symptoms (Birchwood & Iqbal, 1998; Fowler *et al.,* 1995; Garety, Kuipers, Fowler, Freeman & Bebbington, 2001). Therefore, research investigating factors associated with distress in this population has important clinical implications, since interventions designed to target these areas could result in significant improvements in outcome.

1.2.9 Summary

Psychosis refers to a range of mental health diagnoses, the core symptoms of which are hallucinations, delusions and thought disturbance. Schizophrenia is perhaps the most common and well-known of the psychotic disorders. Although the term schizophrenia has been in use for over a century, concerns remain regarding the validity of the concept. This has led to a move towards a symptom approach, rather than focusing on traditional diagnostic categories. The availability of psychological interventions for individuals with psychosis has expanded significantly over recent

years. Although approaches may differ with regard to their primary focus, it is suggested that the ultimate aim of all psychological interventions should be to reduce the distress associated with psychotic symptoms. Distress is common in this population and is associated with a range of negative outcomes. Research investigating factors associated with distress in this population has important clinical implications, since psychological interventions that target these areas may result in improved outcomes.

1.3 The cognitive model

The central tenet of any cognitive model is the notion that an individual's response to an event is mediated by their beliefs and appraisals, rather than being an inevitable consequence of the event itself (Brewin, 1988; Chadwick *et al.,* 1996; Chadwick, 2006). Ellis (1962) provided a major contribution in the development of the cognitive model by proposing his ABC framework, in which environmental or activating events (A) are linked to the emotional or behavioural consequences (C) by the intervening beliefs about the activating event (B). Chadwick *et al.* (1996) emphasised that different types of cognitive structures are involved within the B element of the ABC framework, in particular differentiating between schemas, evaluations and inferences. They suggest that despite the fact that schemas are enduring, and often not tied to a specific situation or context, they remain an important part of the mediation between an event (A) and consequences (C) as they inform other types of cognition that are bound by context, such as inferences.

Similarly, when explaining the cognitive influence on affective disorders, Beck proposed a hierarchical model of cognitions, in which he postulated that surface-level

beliefs were based on underlying cognitive structures developed from previous experiences (schemas) (Beck 1976; Beck, Rush, Shaw & Emery, 1979). Therefore, according to the cognitive model, it is an individual's underlying schemas that inform their appraisal of events, and it is both of these factors which are considered to influence the individual's emotional and behavioural response to events (Garety, Fowler & Kuipers, 2001).

1.3.1 Schemas

Schemas have been described as stable knowledge structures that represent an individual's total knowledge of self and the world (Davidson, 2008). They are broad, pervasive themes that develop during childhood, and are elaborated throughout an individual's lifetime (Young, 1999). However, despite their endurance once formed, schemas are not always in our conscious awareness and can remain dormant until activated by relevant events or situations (Beck *et al.,* 1979; Rector, Segal & Gemar, 1998; Young, 1999). Schemas serve as templates for the processing of later experience and are of central importance in guiding subsequent cognitive processes (Beck *et al.,* 1979; Hollon & Kriss, 1984; Young, 1999). They can be categorised according to the type of information they seek to organise (Hollon & Kriss, 1984), such as self-schema, other-schema and illness-schema. The notion of a self-schema was postulated by Markus (1977) to describe schema which functions as an active organiser of self-referent information.

1.3.1.1 Schema development

All individuals possess schemas that develop in response to life experiences. Schemas are a means of organising experience and are part of normal cognitive development

(Davidson, 2008). They are essential in allowing individuals to categorise and interpret their experiences in a meaningful way, and to generally make sense of the world (Beck, 1972; Garety, Fowler *et al.,* 2001; Hollon & Kriss, 1984). However, despite the ability of schemas to help individuals navigate through their social environment, they are not always adaptive, and adverse early experiences are considered to contribute to the development of dysfunctional or maladaptive schemas (Davidson, 2008; Young, Klosko & Weishaar, 2003). Schemas are considered dysfunctional when the knowledge they contain is both rigid and unrealistically negative (Scher, Segal & Ingram, 2004).

1.3.1.2 Schema maintenance

A schema is strengthened when information consistent with the theme of the schema is repeatedly processed (Hollon & Kriss, 1984). Once information accumulates in this manner, the schema can become very resistant to modification (Hollon & Kriss, 1984; Young, 1999). However, when information is processed that is inconsistent with our core schema, then a state of discomfort, known as cognitive dissonance, is produced (Festinger, 1957). Cognitive dissonance has been described as two cognitions occurring together that are inconsistent with each other, according to the expectations of the person (Brabban & Turkington, 2002). To reduce cognitive dissonance, it is proposed that one of two processes needs to occur. Firstly, the incoming information may be altered or selectively processed so that it becomes consistent with the pre-existing schema, a process known as assimilation (Hollon & Kriss, 1984). Secondly, the schema itself may be modified in order to accommodate the discrepant information, a process known as accommodation (Hollon & Kriss, 1984). As schemas are relatively enduring themes that develop over time, they are extremely resistant to

change and therefore, the process of assimilation is suggested to occur more frequently than accommodation (Hollon & Kriss, 1984).

1.3.1.3 Schemas and psychopathology

The presence of negative or maladaptive schemas is thought to create an enduring cognitive vulnerability to psychopathology (Davidson *et al.,* 1998; Mason, Platts & Tyson, 2005; Segal, 1988). Such schemas may contribute both directly and indirectly to psychological distress (Young, 1999). Schemas are considered to indirectly contribute to emotional responses through their influence on surface-level beliefs and interpretations (Beck, 1972, 1976; Beck *et al.,* 1979). Thus, negative schemas can be conceptualised as contributing to negative interpretations and beliefs. It is hypothesised that depressed individuals hold negative self-schemas, which contribute to the development and maintenance of negative beliefs through distortions and biases in information processing (Beck, 1972; Beck *et al.,* 1979; Segal, 1988). Depressed individuals are thought to filter out positive self-knowledge and exaggerate negative self-referent information, in order to maintain consistency between their beliefs and negative self-schema (Beck, 1972; Beck *et al.,* 1979; Segal, 1988).

1.3.1.4 Schemas and psychosis

The experience of severe adversity, victimisation, social marginalisation, and exposure to traumatic events, is considered common amongst this population (Bebbington *et al.,* 2004; Janssen *et al.,* 2004; Mueser *et al.,* 1998). In fact, the onset of psychosis itself can often be a traumatic experience, and the consequences of suffering from a severe mental illness are thought to add to the adversity experienced

by this population (Birchwood, 2003; Fowler *et al.,* 1995; Garety, Fowler & Kuipers, 2000).

Negative childhood experiences and negative self-schema have been found to predict avoidant coping in this population (Drayton, Birchwood & Trower, 1998; Tait, Birchwood & Trower, 2004), and it is also suggested that negative schemas can contribute to the formation and maintenance of psychosis (Barrowclough *et al.,* 2003; Birchwood, Meaden, Trower, Gilbert & Plaistow, 2000; Garety, Kuipers *et al.,* 2001). However, other researchers state that it remains unclear whether negative schemas are the cause or consequence of psychotic experience (Nieznański, 2003; Smith *et al.,* 2006). It has been suggested that the relationship is bi-directional, with negative schemas contributing to the formation of psychotic symptoms, and consequently psychotic symptoms are thought to increase and reinforce the occurrence of negative self-beliefs (Barrowclough *et al.,* 2003). The experience of psychosis is thought to increase negative self-beliefs not only through direct symptom content, but also through critical and negative reactions from significant others (Barrowclough *et al.,* 2003).

An influential body of research on the role of schematic beliefs in the formation of psychotic symptoms has been carried out by Bentall and colleagues, who proposed that persecutory delusions result from attempts to defend against underlying negative self-schema reaching consciousness (Bentall, Corcoran, Howard, Blackwood & Kinderman, 2001; Bentall & Kaney, 1996; Bentall, Kinderman & Kaney, 1994). It is hypothesised that individuals with paranoid and persecutory delusions have a self-serving attributional bias, where negative events are attributed to external causes, and

positive events are attributed to internal causes (Bentall & Kaney, 1996; Bentall *et al.,* 1994). Thus, individuals avoid responsibility or self-blame for negative events, and instead displace blame onto others, resulting in the formation of persecutory delusions, but protecting against becoming aware of underlying negative self-schema (Bentall & Kaney, 1996; Melo, Taylor & Bentall, 2006). However, this research has been criticised, as it has been argued that negative self-evaluative beliefs are common in people with paranoid and persecutory delusions (Garety & Freeman, 1999; Smith *et al.,* 2006), thereby questioning the hypothesis that paranoia serves to defend against this.

Evidence has also been found supporting the notion of thematic links and consistencies between the content of an individual's psychotic symptoms and their schemas or past traumatic experiences (Brabban & Turkington, 2002; Fowler, Garety & Kuipers, 1998; Raune, Bebbington, Dunn & Kuipers, 2006). It is suggested that psychotic symptoms that are congruent with firmly held negative schemas are more likely to be interpreted as accurate and are consequently upheld (Close & Garety, 1998; Garety, Kuipers *et al.,* 2001). According to this theory, derogatory or critical voices would be more likely to be reinforced and maintained in those individuals with activated negative self-schema. Furthermore, Smith *et al.* (2006) found that negative self-evaluative beliefs were associated with psychotic symptoms of a more negative content.

Negative schematic beliefs have also been postulated as contributing to psychotic symptoms through their influence on appraisals and beliefs. Birchwood and Chadwick (1997) hypothesised that schemas, developed in response to past experiences and

relationships with significant others, may play a part in influencing the construction of beliefs about auditory hallucinations. They found that core interpersonal schemas influenced how individuals interpreted their voice, for example whether it was construed as malevolent or benevolent, or powerful or non-influential (Birchwood & Chadwick, 1997). Further studies have also suggested that an individual's relationship with their voices is likely to reflect the nature of their relationships with others in the social world (Birchwood, Meaden *et al.*, 2000; Vaughan & Fowler, 2004). Birchwood, Meaden *et al.* (2000) found that those individuals who regarded themselves as less powerful and lower in social rank than others, were also more likely to perceive themselves as subordinate to their voices.

Dysfunctional assumptions about the self, which imply worthlessness, uselessness and un-lovability, are thought to be common amongst individuals with psychosis (Kuipers, Garety & Fowler, 1996). Disturbances in sense of self have long been acknowledged in the literature relating to psychosis, however the topic of self-schema has received relatively little empirical investigation (Nieznański, 2003; Robey, Cohen & Gara, 1989). The experience of chronic illness is known to reduce an individual's sense of identity and self-concept, although this has been researched more fully in literature relating to physical illnesses (Beanlands, McCay & Landeen, 2006). A loss of normal role, restricted choices, acceptance of the illness label, and a sense of having been changed by the illness, and viewing this change as permanent, are all thought to contribute to a change in self-identity as a result of the illness experience (Beanlands *et al.,* 2006; Kirkpatrick, Landeen, Woodside & Byrne, 2001). The experience of chronic illness has been said to result in the experience of 'engulfment', whereby individuals are unable to reconstruct a valued non-illness self-concept, so

begin to define themselves in terms of their illness (Beanlands *et al.,* 2006). In accordance with this, it has been suggested that individuals with psychosis may perceive themselves not only as experiencing psychosis, but of becoming 'psychotic' (Nieznański, 2003).

Recent studies have found that individuals with psychosis report extreme negative evaluations of both self and others (Fowler *et al.,* 2006; Smith *et al.,* 2006), with the exception of individuals who experience grandiose delusions, which have been inversely associated with negative self-schema (Smith *et al.,* 2006). Negative self-schemas have also been associated with increased emotional distress and preoccupation with symptoms (Garety, Kuipers *et al.,* 2001; Smith *et al.,* 2006).

There is still considerable debate about the exact nature and significance of the schema construct in psychosis and different theories have different hypotheses, especially in relation to different types of psychotic symptom. Further research investigating schemas in individuals with psychosis is merited, in particular investigating relationships between schemas and other psychological processes within this population.

1.3.2 Cognitions

1.3.2.1 Illness beliefs

The beliefs that an individual constructs about their illness are thought to be central to the process by which they attempt to understand and make sense of the illness experience (Vaughan, Morrison & Miller, 2003). In physical health research many studies have demonstrated that the beliefs individuals hold about their illness are

important in predicting emotional and behavioural responses, and have been shown to be related to health outcomes, such as treatment adherence and compliance (Millar, Purushotham, McLatchie, George & Murray, 2005; Scharloo *et al.,* 2005; Schiaffino, Shawaryn & Blum, 1998). Illness beliefs have been shown to be amenable to change and thus have become important targets for interventions (Lobban, Barrowclough & Jones, 2003).

1.3.2.2 Beliefs about psychosis

Negative beliefs about psychosis have been found to be associated with the development of depression (Birchwood, Mason, MacMillan & Healy, 1993; Iqbal, Birchwood, Chadwick & Trower, 2000; Rooke & Birchwood, 1998), anxiety (Birchwood *et al.,* 2006; Gumley, O'Grady, Power & Schwannauer, 2004; Karatzias, Gumley, Power & O'Grady, 2007), low self-esteem (Watson *et al.,* 2006), and distress (Lobban *et al.,* 2004). In addition, it has been suggested that such beliefs may contribute to the maintenance of psychotic symptoms (Birchwood & Iqbal, 1998; Fowler *et al.,* 1995; Garety, Kuipers *et al.,* 2001). Negative beliefs about psychosis have also been found to be significantly associated with outcomes including quality of life, overall level of functioning (Lobban *et al.,* 2004) and relapse (Gumley *et al.,* 2006).

It has been demonstrated that levels of distress are not purely a consequence of the presence of psychotic symptoms (Lobban *et al.,* 2004) and that, for some individuals, an increase in emotional distress occurs after the remission of such symptoms (Birchwood, Iqbal *et al.,* 2000). An individual's appraisal of the psychotic experience

has been found to be a key factor in the emergence of post-psychotic depression (Birchwood *et al.,* 2006; Iqbal *et al.,* 2000).

Birchwood *et al.* (1993) found that perceived control over illness was a significant contributor to emotional dysfunction in individuals with schizophrenia. They found that a more external locus of control was associated with increased levels of depression (Birchwood *et al.,* 1993). Appraisals regarding the controllability of psychotic symptoms have also been demonstrated to be associated with hopelessness (Hoffman, Kupper & Kunz, 2000), distress (Freeman & Garety, 1999), and type of coping strategy used (Romme, Honig, Noorthoorn & Escher, 1992).

Negative beliefs regarding mental illness, including stigmatisation, social marginalisation and experience of shame regarding diagnosis, have been found to be associated with depression (Birchwood *et al.,* 1993) and social anxiety (Birchwood *et al.,* 2006) in this population. Other studies have also found that appraisals of loss, humiliation, entrapment, and self-blame regarding the cause of psychosis, have been associated with depression (Iqbal *et al.,* 2000; Rooke & Birchwood, 1998) and anxiety (Gumley *et al.,* 2004; Karatzias *et al.,* 2007).

1.3.2.3 Beliefs about auditory hallucinations

Beliefs about voices, rather than voice content alone, have been found to be important in understanding an individual's emotional and behavioural response to the experience of auditory hallucinations (Birchwood & Chadwick, 1997; Chadwick & Birchwood, 1994, 1995). It has been suggested that beliefs about voices may mediate emotional, physiological and behavioural responses, in a similar manner that

catastrophic misinterpretations mediate the relationship between physiological arousal, emotions and behaviour in panic disorder (Morrison, 1998). In particular, it is proposed that if auditory hallucinations are appraised as uncontrollable, dangerous and interpreted as physically or psychologically threatening to the individual, then it is likely that this will be associated with increased distress (Morrison, 1998; Morrison, Wells & Nothard, 2000). In addition, beliefs about a voice's identity, purpose (e.g., whether it is perceived as benevolent or malevolent), power, and beliefs about the consequences of obedience and disobedience have also been emphasised as being particularly important in determining emotional and behavioural responses (Chadwick *et al.,* 1996).

Chadwick and Birchwood (1994, 1995) found that individuals who believed their voices to be benevolent were more likely to engage with them, whereas individuals who viewed their voices as malevolent were more likely to try to resist or eradicate them. Beliefs that voices are malevolent have also been found to be associated with increased depression (Chadwick *et al.,* 1996) and distress (Chadwick & Birchwood, 1994).

Studies have found that individuals frequently perceive their voices as extremely powerful (Birchwood & Chadwick, 1997; Chadwick & Birchwood, 1994; Close & Garety, 1998) and that these beliefs are associated with higher levels of depression (Chadwick & Birchwood, 1996). Individuals who believe their voices are both omnipotent and malevolent are more likely to experience anxiety and depression (Chadwick & Birchwood, 1994; van der Gaag, Hageman & Birchwood, 2003) and

individuals who believe that their voices are omniscient and omnipotent have been found to experience greatest difficulty in coping (Chadwick & Birchwood, 1994).

1.3.2.4 Beliefs and voice content

Research has shown that beliefs about voices are not necessarily directly influenced by voice content. It has been suggested that up to 50% of individuals who hear voices, may hold beliefs about these voices that are either not explicable by reference to voice content, or are directly incongruous with voice content (Birchwood, Meaden, Trower & Gilbert, 2002; Chadwick & Birchwood, 1995; Chadwick *et al.,* 1996). In fact, a study by Birchwood and Chadwick (1997) found that neutral observers rated voice beliefs as 'following directly' from voice content in only a quarter of cases in their sample. These findings have important clinical implications since they suggest that, even with continuing negative content, distress may be reduced by changing individuals' beliefs about their voices (van der Gaag *et al.,* 2003).

1.3.3 Summary

According to the cognitive model, the relationship between psychotic symptoms and emotional and behavioural responses is mediated by underlying schema and surface-level cognitions. Negative schemas are viewed as stemming from adverse early experiences and are proposed to influence surface-level beliefs through information processing biases and distortions. Individuals with psychosis have been found to hold negative schematic beliefs regarding both self and others. Beliefs about psychotic symptoms have been demonstrated to influence both behavioural and emotional reactions to these experiences, and these beliefs are not always directly related to symptom content. Both schemas and cognitions are considered amenable to change

through psychological therapy, therefore have become important targets for interventions. According to the cognitive theory, emotional and behavioural outcomes may be improved by altering negative or dysfunctional schemas and beliefs.

1.3.4 Cognitive Therapy

Cognitive Therapy was originally developed for the treatment of depression (Beck, 1976) but has since been applied to a wide range of other clinical disorders. Although Beck published an early case study on the use of cognitive therapy for the treatment of delusions (Beck, 1952), it is only more recently that the approach has become established as a potential treatment intervention for psychotic disorders. Psychotic symptoms were traditionally not seen as amenable to reasoning, and this together with assumptions regarding the cognitive deficits of individuals with psychosis, may account for the delay in empirically investigating cognitive therapy with this population (Gaudiano, 2005; Gould, Mueser, Bolton, Mays & Goff, 2001).

Cognitive Therapy is based on the underlying theoretical rationale that an individual's affect and behaviour are largely determined by their beliefs and the way in which they structure the world (Beck, 1972, 1976; Beck *et al.,* 1979). The approach aims to reduce distress and dysfunction by modifying unhelpful beliefs and assumptions (Chadwick *et al.,* 1996; Gaudiano, 2005). Therapeutic techniques include identifying negative or dysfunctional thoughts and beliefs, reviewing evidence for these beliefs and identifying thinking biases, encouraging self-monitoring of cognitions, and learning to identify and alter the dysfunctional schemas underlying these cognitions (Beck *et al.,* 1979; Garety *et al.,* 2000; Garety, Fowler *et al.,* 2001). A central theme in cognitive therapy is relating cognitions to mood and behaviour. In addition to the

cognitive techniques outlined above, a number of behavioural strategies are also utilised within cognitive therapy, not only to change behaviour, but also to elicit cognitions associated with specific behaviours and to test specific maladaptive cognitions and assumptions (Beck *et al.,* 1979). Due to this behavioural aspect, the term cognitive behaviour therapy (CBT) is also used to describe this type of approach.

Initially, cognitive therapy was used primarily for those individuals with persistent and medication resistant hallucinations and delusions. However, it has recently been more widely applied within psychosis, including as an intervention in early or first episode psychosis (Addington & Gleeson, 2005; Gumley *et al.,* 2003) and as a means of promoting recovery from acute psychotic episodes (Lewis *et al.,* 2002).

1.3.4.1 Evidence base

Although cognitive therapy has some strong empirical support for treating a range of psychological conditions, it is only more recently that its efficacy in treating psychotic disorders has been examined (Gaudiano, 2005). Despite this, there does appear to be growing evidence for its effectiveness in reducing positive psychotic symptoms (Gould *et al.,* 2001; Rathod, Kingdon, Weiden & Turkington, 2008; Tarrier *et al.,* 1998) and the UK National Institute for Clinical Excellence (NICE) has recommended CBT as a treatment for individuals with schizophrenia (NICE, 2002).

A number of meta-analyses have been published which generally conclude that CBT is an effective adjunct intervention for individuals with psychosis (Gould *et al.,* 2001; Pilling *et al.,* 2002; Rector & Beck, 2001; Tarrier & Wykes, 2004; Wykes, Steel, Everitt & Tarrier, 2008; Zimmermann, Favrod, Trieu & Pomini, 2005). Overall, the

more rigorous meta-analyses have shown a modest effect size between CBT and standard care in improving positive symptoms (Tarrier & Wykes, 2004; Wykes *et al.,* 2008; Zimmermann *et al.,* 2005), which Tarrier and Wykes (2004) suggest is not surprising given the severity of the disorder. However, many of the studies involve significant methodological limitations, and it has been suggested that this could artificially inflate the effect size. In particular, a common criticism has been the lack of double blind assessment, and it has been demonstrated that when studies attempted masked assessment, almost a 60% reduction in the effect size was noted (Wykes *et al.,* 2008).

Although many studies have found that CBT can be an effective intervention for individuals with psychosis, this effectiveness is far from conclusive. There has been significant variation and inconsistencies between studies in terms of their findings, and in particular trials comparing CBT to other non-specific interventions, have yielded less impressive findings (Gaudiano, 2005; Haddock, Tarrier *et al.,* 1999; Sensky *et al.,* 2000). Supportive counselling and befriending have been shown to be equally effective as CBT in reducing symptoms (Haddock, Tarrier *et al.,* 1999; Sensky *et al.,* 2000). However, one of these studies was a small pilot study (Haddock, Tarrier *et al.,* 1999) and the other showed that the benefits of befriending were limited to the duration of the intervention, whereas CBT showed continued improvement at follow up (Sensky *et al.,* 2000). Findings from other studies also suggest that the therapeutic effects of CBT may continue when therapy finishes, or at least are preserved (Kuipers *et al.,* 1998; Tarrier *et al.,* 1999; Zimmermann *et al.,* 2005). However, inconsistencies in findings are again present and a recent systematic review concluded that CBT improved psychological functioning over the short and medium

term only and after one year the difference was no longer significant (Jones, Cormac, Silveira da Mota Neto & Campbell, 2004).

The variability between findings from different studies has been attributed to a number of possible sources, including differences in the content, format, duration and emphasis of therapy (Gould *et al.,* 2001; Jones *et al.,* 2004; Tarrier & Wykes, 2004), and variation in the nature of treatment-as-usual or control groups (Tarrier & Wykes, 2004; Wykes *et al.,* 2008). Gumley and Schwannauer (2006) also suggest that some of the variability in findings may be due to variation in outcome measures used and heterogeneity of samples in terms of symptoms and diagnoses.

In conclusion, while evidence supporting the use of CBT for psychosis appears to be promising, many researchers have advocated that findings should be interpreted cautiously given the methodological limitations of some studies (Jones *et al.,* 2004; Tarrier & Wykes, 2004; Wykes *et al.,* 2008). Further research is needed in this area, in particular to determine which individuals are most likely to benefit from this intervention, and to identify the specific mechanisms or components responsible for treatment effectiveness (Gaudiano, 2005; Tarrier & Wykes, 2004; Wykes *et al.,* 2008; Zimmermann *et al.,* 2005).

1.4 Acceptance-based approaches

Treatment interventions for individuals with psychosis have traditionally focused on eliminating or reducing psychotic symptoms as a primary outcome. Interventions that aim to directly alter problematic or negative internal experiences in this way have been termed 'first-order change' strategies (Hayes & Wilson, 2003; Zettle *et al.,*

2005). Cognitive therapy is an example of such an intervention, as it aims to change the content of negative or dysfunctional thoughts in an attempt to reduce problematic affective or behavioural responses.

More recently a 'third wave' of cognitive and behaviour therapies have emerged, which emphasise acceptance rather than control of symptoms (Hayes, 2004). These interventions place greater emphasis on so-called 'second-order change' and aim to change the way individuals relate to negatively evaluated internal experiences. Such approaches include Acceptance and Commitment Therapy (ACT; Hayes, Strosahl & Wilson, 1999), Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams & Teasdale, 2002), and Dialectical Behaviour Therapy (DBT; Linehan, 1993).

Acceptance-based approaches have been described as 'facilitating therapeutic change by altering the context within which private events function' (Zettle *et al.,* 2005, p.512). From this perspective, the form or content of cognition is not considered directly problematic unless contextual features lead this cognitive content to regulate behaviour in unhelpful ways (Hayes, Luoma, Bond, Masuda & Lillis, 2006). Problematic contexts would be seen as 'those in which private events need to be controlled, explained, believed, or disbelieved, rather than being experienced' (Hayes, Masuda, Bissett, Luoma & Guerrero, 2004, p.45). Techniques such as mindfulness, cognitive defusion, and acceptance are utilised within these approaches to encourage non-evaluative contact with internal experience (Hayes & Wilson, 2003).

1.4.1 Mindfulness

Mindfulness has been described as 'the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgementally to the unfolding of experience moment by moment' (Kabat-Zinn, 2003, p.145). Meditation exercises are central to developing the ability to direct one's attention in this way (Baer, 2003). A core goal of mindfulness is to 'learn how to become aware of, observe and react less habitually to sensations, thoughts and feelings' (Ramel, Goldin, Carmona & McQuaid, 2004, p.435).

The practice of mindfulness stems from Eastern spiritual traditions, such as Buddhism, but in recent decades has become increasingly popular within Western society. It has been suggested that the cultivation of mindfulness may be beneficial to individuals experiencing a wide range of mental health difficulties and as such, the approach has gained considerable interest within the field of mental health interventions (Baer & Krietemeyer, 2006).

It has been suggested that mindfulness can be useful in reducing distress associated with negative schematic beliefs about the self (Chadwick, 2006). Such beliefs are often characterised by avoidance, intense negative judgement, and rumination (Chadwick, 2006), and mindfulness can provide a means of 'decentring' from these beliefs and consequently 'a more flexible notion of the self and a more fluid relationship to the content of the mind' (Ramel *et al.,* 2004, p.435) can be achieved.

1.4.2 Cognitive defusion

Cognitive defusion refers to the process of weakening the literal meaning of thoughts, so that thoughts and feelings are experienced for what they are, rather than taken to be true interpretations of the experience (Hayes, 2004; Hayes, Strosahl, Bunting, Twohig & Wilson, 2004; Hayes *et al.,* 1999). It is based on the idea that no private experiences are inherently toxic when they are experienced for what they are, no matter how aversive their content, but instead their toxicity derives from viewing them as what they claim to be, such as bad or harmful (Baer & Krietemeyer, 2006; Hayes, Strosahl, Bunting *et al.,* 2004). Cognitive defusion techniques involve individuals observing 'thoughts and the process of thinking without assuming that thoughts are true or important and without always behaving in accordance with their content' (Baer & Krietemeyer, 2006, p.24).

The process of cognitive defusion can be considered to share some similarity with the procedures used within cognitive therapy (Baer & Krietemeyer, 2006; Blackledge, 2007). For example, cognitive therapy encourages individuals to observe and monitor their thoughts, and to step back from dysfunctional thoughts, viewing them as beliefs and hypotheses to be tested, rather than facts (Baer & Krietemeyer, 2006; Blackledge, 2007). However, although there may be similarities in the processes employed by cognitive therapy and acceptance-based approaches, their ultimate aims differ. In cognitive therapy, the process of identifying and observing thoughts is used as a mechanism through which thought content can be modified or altered, rather than the primary mechanism of therapeutic change (Teasdale *et al.,* 2002). In acceptance-based approaches, this process of 'deliteralisation' is considered a means of increasing psychological acceptance (Wilson, Hayes & Gifford, 1997). The ultimate aim of

cognitive defusion in acceptance-based approaches is to reduce the behavioural impact of thoughts, and allow constructive behaviour even in the presence of unwanted private experiences (Baer & Krietemeyer, 2006; Blackledge, 2007).

1.4.3 Acceptance

Psychological acceptance has been described as 'taking a stance of non-judgmental awareness and actively embracing the experience of thoughts, feelings, and bodily sensations as they occur' (Hayes, Strosahl, Bunting *et al.,* 2004, p.7). The importance of psychological acceptance has been emphasised in traditions such as psychoanalytic, humanistic and existential approaches (Hayes *et al.,* 1999; Hayes, Wilson, Gifford, Follette & Strosahl, 1996). However, it is claimed that its importance has been neglected in many empirical therapies, and that the significance of changing unpleasant symptoms, thoughts and emotions has been overemphasised (Baer, 2003).

The importance of psychological acceptance has been demonstrated across a wide range of clinical disorders (Hayes *et al.,* 2006; Öst, 2008) and has been found to be significantly associated with positive clinical outcomes (Hayes *et al.,* 2006; Hayes *et al.,* 1999). Conversely, the alternative to acceptance, experiential avoidance, has been described as an extremely toxic and pathological process (Hayes 2004; Hayes *et al.,* 1999) that is detrimental to well-being (Hayes *et al.,* 1996).

1.4.3.1 Experiential avoidance

Experiential avoidance has been described as 'the phenomenon that occurs when a person is unwilling to remain in contact with particular private experiences (e.g., bodily sensations, emotions, thoughts, memories, behavioural predispositions) and

takes steps to alter the form or frequency of these events and the contexts that occasion them' (Hayes *et al.,* 1996, p.1154). This unwillingness to remain in contact with negatively evaluated private experiences, and persistent attempts to alter their form or the contexts in which they arise, is thought to be critical to the development and maintenance of psychopathology (Hayes *et al.,* 1999). Experiential avoidance is proposed to be a stronger contributor to psychopathology than the content of such experiences (Hayes *et al.,* 1999; Kashdan, Barrios, Forsyth & Steger, 2006; Plumb, Orsillo & Luterek, 2004).

Research suggests that experiential avoidance may play a significant role in the development and maintenance of psychological distress (Plumb *et al.,* 2004), and contributes to overall psychological inflexibility (Hayes *et al.,* 1999). Experiential avoidance has been implicated in a variety of clinical disorders (Chawla & Ostafin, 2007; Hayes *et al.,* 2006; Hayes, Strosahl, Wilson *et al.,* 2004; Öst, 2008) and has been strongly correlated with measures of general psychopathology in both clinical and non-clinical samples (Chawla & Ostafin, 2007; Hayes, Strosahl, Wilson *et al.,* 2004).

The immediate effects of experiential avoidance are often seemingly positive (Hayes, Strosahl, Wilson *et al.,* 2004; Hayes *et al.,* 1996). However, in the long-term such deliberate control strategies are thought to paradoxically increase the severity of these internal experiences, thus maintaining or exacerbating psychological difficulties and distress, which presumably leads to further avoidance (Andrew & Dulin, 2007; Hayes *et al.,* 1999; Hayes *et al.,* 1996). Experiential avoidance has been described as a disordered and harmful process when it is applied rigidly and inflexibly, such that an

enormous amount of time, effort and energy becomes devoted to managing, controlling, or struggling with internal experience (Kashdan *et al.,* 2006). It has been proposed that such rigid attempts to avoid these negatively evaluated private experiences, consequently restricts an individual's behavioural repertoire, and reduces the occurrence of meaningful life activities (Hayes *et al.,* 1999; Kashdan *et al.,* 2006). Research has demonstrated that greater experiential avoidance is more likely to be associated with lower quality of life and reduced life satisfaction (Hayes, Strosahl, Wilson *et al.,* 2004; Kashdan *et al.,* 2006).

1.4.3.2 Experiential avoidance and psychosis

Avoidant coping has been found to be common amongst individuals with psychosis (Tait *et al.,* 2004; Thompson, McGorry & Harrigan, 2003) and methods of suppressing psychotic symptoms, including deliberate ignoring and distraction, are frequently reported within this population (Shergill, Murray & McGuire, 1998). Previous research has indicated that suppression-based coping strategies are more likely to be applied to private experiences associated with high social disapproval or to those with content relating to harming oneself or others (Freeston & Ladouceur, 1993; Purdon & Clark, 1994). Thus, psychotic symptoms could be considered a natural target for suppression and avoidant-type coping strategies.

Avoidant coping strategies have been associated with increased levels of psychological distress and depression (Drayton *et al.,* 1998) and reduced quality of life (Thompson *et al.,* 2003) amongst individuals with psychosis. In addition, it has been proposed that such strategies impact negatively on psychotic symptoms, in particular exacerbating intrusive thoughts and auditory hallucinations (Morrison,

Haddock & Tarrier, 1995). In accordance with this, Romme and Escher (1993) found that individuals with psychosis who used distraction-based coping strategies frequently dealt poorly with the experience of auditory hallucinations.

1.4.4 Acceptance and mindfulness-based treatment approaches

Despite promising empirical support for the use of CBT with individuals with psychosis, a significant proportion of individuals with these symptoms do not respond to these interventions (Gaudiano, 2005). Kuipers *et al.* (1997) in their controlled trial of CBT for psychosis, found that 50% of their sample demonstrated a positive response to the intervention, whereas the other 50% showed little or no response. Therefore, in an attempt to augment the effectiveness of CBT for this population, recent approaches have begun to introduce the inclusion of acceptance and mindfulness-based strategies into cognitive behavioural interventions (Bach, Gaudiano, Pankey, Herbert & Hayes, 2006; Chadwick, 2006; Gaudiano, 2005).

1.4.4.1 Mindfulness and cognitive therapy

Mindfulness, like cognitive therapy, is based on the premise that distress is not inherent in experiences or sensations, but is mediated by an individual's reaction to such experiences (Abba, Chadwick & Stevenson, 2008; Chadwick, 2006). Unlike cognitive therapy, which emphasises the beliefs an individual holds and the meaning they ascribe to events as key mediating factors driving emotional and behavioural reactions, mindfulness focuses on an individual's relationship with their experiences, in explaining these outcomes. It is increasingly recognised that an individual's relationship with their symptoms and internal experience is important in predicting distress (Chadwick, 2006). Thus, these methods rather than effecting change through

modification of belief content, as in cognitive therapy, aim to change the individual's relationship to their beliefs, experiences and symptoms (Shawyer *et al.,* 2007). However, both mindfulness and cognitive therapy are seen to have the common goal of alleviating distress and promoting emotional well-being (Chadwick, 2006).

It has been suggested that there are conceptual consistencies between mindfulness and cognitive therapy approaches, which make them appropriate for integration within a single treatment intervention (Baer, 2003; Chadwick, 2006; Gaudiano, 2005). As outlined above, they both share the common aim of alleviating distress and both view the source of distress as mediated by factors intrinsic to the individual, rather than a direct consequence of events (Chadwick, 2006). In addition, it has been suggested that the process of metacognitive insight is central to both approaches, and key to the process of change (Chadwick, 2006). Metacognitive insight has been defined as 'an observation about a general quality of sensations, cognitions, emotions or the relationships among them' (Chadwick, 2006, p.18). Chadwick (2006) states that in CBT, metacognitive insight is fostered by encouraging clients to recognise that their beliefs are in fact beliefs, rather than facts, and similarly in mindfulness, individuals are encouraged to decentre from cognitions and perceive them as transient objects of awareness.

As previously outlined, mindfulness strategies have been integrated into a number of third wave treatment approaches. However, probably the most empirically researched approach within the area of psychosis is Acceptance and Commitment Therapy (ACT, *said as one word rather than as initials*; Hayes *et al.,* 1999).

1.4.4.2 Acceptance and Commitment Therapy

ACT is part of the behaviour therapy tradition, and is based on a behavioural theory of psychopathology that suggests that psychological distress often results from maladaptive attempts to avoid or escape emotions, thoughts, or other private experiences (Bach & Hayes, 2002; Baer & Krietemeyer, 2006; Hayes, Strosahl & Bunting, 2004; Wilson *et al.,* 1997). From this perspective, problematic or dysfunctional cognitions are not viewed as the cause of negative affect or maladaptive behaviours (Hayes & Wilson, 1995; Wilson *et al.,* 1997). Instead, ACT views psychopathology as resulting from psychological inflexibility, which is considered to be dominantly the result of two processes, cognitive fusion and experiential avoidance (Hayes, Strosahl, Bunting *et al.,* 2004).

The general goal of ACT is to increase psychological flexibility, which is defined as 'the ability to contact the present moment more fully as a conscious human being, and to either change or persist when doing so serves valued ends' (Hayes, Strosahl, Bunting *et al.,* 2004, p.5). ACT aims to increase psychological flexibility through the use of acceptance and mindfulness strategies, together with commitment and behaviour change strategies (Hayes *et al.,* 2006; Shawyer *et al.,* 2007). Acceptance and mindfulness strategies involve undermining attempts at control of symptoms and internal experience, as well as diminishing the role of literal thought (Hayes, Masuda *et al.,* 2004). Commitment and behaviour change strategies have been described as those which encourage individuals to develop larger and larger patterns of effective action linked to chosen values (Hayes *et al.,* 2006; Shawyer *et al.,* 2007). Individuals are encouraged to abandon attempts at controlling thoughts and feelings, and instead interventions aim to increase willingness to experience private events while at the

same time behaving consistently with their chosen values (Baer, 2003; Hayes, Masuda *et al.,* 2004; Hayes *et al.,* 1999). Therefore, acceptance is not an end in itself, but is fostered as a method of increasing values-based action (Hayes *et al.,* 2006).

Experiential avoidance is a central concept in ACT (Baer & Krietemeyer, 2006; Hayes *et al.,* 1999) and various mindfulness and acceptance exercises are practiced to decrease avoidance or struggle with internal experiences (Gaudiano & Herbert, 2006). Experiential avoidance is thought to interfere with the ability of individuals to live in accord with their core values (Kashdan *et al.,* 2006). Thus, by reducing experiential avoidance the aim is to encourage individuals to develop greater psychological acceptance, and engagement in valued behaviours (Hayes *et al.,* 1999).

Cognitive fusion, where individuals are entangled with the literal meaning of thoughts, is conceptualised as a process that supports experiential avoidance. Therefore, cognitive defusion is also a key aim of ACT interventions. Ultimately, ACT aims to alter the contexts in which thoughts occur, so as to diminish the impact and importance of difficult private experiences (Hayes, Strosahl, Bunting *et al.,* 2004). For example, interventions may focus on weakening or undermining contexts characterised by a dominance of literal language, or those social contexts which support the evaluation of certain experiences as 'good' or 'bad' (Hayes *et al.,* 1999).

1.4.4.3 Evidence base for Acceptance and Commitment Therapy

Research investigating the empirical evidence base of ACT is still in its infancy. However, there is growing evidence to suggest that it may be an effective intervention for a wide range of problems (Hayes *et al.,* 2006; Hayes, Masuda *et al.,* 2004). In a

recent independent review of the evidence base, Öst (2008) found moderate to large effect sizes for ACT, however concluded that the methodologies of these studies were less stringent than those for CBT. This review stated that as the current evidence stands ACT does not fulfil the criteria for an empirically supported treatment, but did acknowledge that the evidence base was still young and showed some promise. Conditions including depression, anxiety disorders, psychosis, substance abuse, chronic medical illness, eating disorders, chronic pain, and work-related stress, have all been investigated within the ACT literature (Hayes, Masuda *et al.,* 2004). However, although the scope of the empirical literature is wide-ranging, currently research in any one of these individual areas remains limited (Hayes, Masuda *et al.,* 2004).

ACT has been shown to result in improvements in a range of psychological outcomes, and in addition some studies have shown that the mechanisms of change are consistent with the underlying ACT model and are distinct from alternative treatments (Hayes *et al.,* 2006; Hayes, Masuda *et al.,* 2004). In chronic pain, ACT has been found to result in significant improvements in a number of outcomes and increased acceptance of pain appears to be the primary process responsible for this improved functioning (McCracken, Vowles & Eccleston, 2005). Further, Bond and Bunce (2000) found that an ACT intervention in a work-place setting significantly improved employees' general psychological health and that rather than being the result of changes in dysfunctional cognitive content, it was psychological acceptance that mediated the beneficial outcomes of the ACT intervention.

A study by Zettle and Hayes (1987) is one of a small number that have directly compared ACT and cognitive therapy. This study found that ACT was superior to cognitive therapy on reducing depression post-treatment. Although the two groups did not differ significantly on the frequency of depressive thoughts, individuals in the ACT group reported a reduction in the believability of these thoughts. This is an extremely preliminary study, with only a small sample size, therefore firm conclusions cannot really be drawn on the basis of this data. However, it is a useful study to highlight, because not only does it suggest ACT may be as effective as cognitive therapy, but also that it may be working through different processes than direct cognitive change strategies (Hayes *et al.,* 2006).

Further research is needed to more fully investigate the empirical status of ACT. In particular, many of the studies have employed relatively short and limited ACT interventions (Hayes *et al.,* 2006) and investigation of more comprehensive treatment packages would be beneficial to the literature. In addition, some aspects of the ACT model have so far received little empirical investigation (Hayes *et al.,* 2006) and therefore further research in these areas would add to our understanding of the mechanisms of change. Öst (2008) also recommends that future ACT research should include comparisons with CBT for some of the most common psychiatric disorders.

Although the evidence base for ACT is still in its early stages, and methodological limitations prevent firm conclusions being drawn from some of the studies, it does appear a promising approach that may be useful in the treatment of a variety of disorders. In their review paper, Hayes *et al.* (2006) conclude that ACT 'seems so far

to be working across an unusually broad range of problems, and across a range of severity' (p.21).

1.4.4.4 Acceptance and Commitment Therapy with psychosis

To date, two randomised controlled trials have been carried out investigating the application of ACT to individuals with psychosis, and although both have been limited in terms of methodology, they report surprisingly powerful outcomes.

Bach and Hayes (2002) compared a brief, four-session intervention of ACT, with a treatment as usual control group, in a sample of 80 inpatients with positive psychotic symptoms. This study found that patients in the ACT group had half the rate of re-hospitalisation over a follow-up period of four months. However, this study also found an increase in self-reported symptoms amongst patients in the ACT group, but found that these symptoms were rated as less believable. Bach and Hayes suggest that the increase in reported symptoms could reflect increased acceptance, and therefore individuals were more likely to acknowledge rather than deny the presence of symptoms. The decreased believability has been proposed to result from increased cognitive defusion, and has also been found in other studies investigating ACT (Zettle & Hayes, 1987). However, a limitation of this study is the lack of standardised outcome measures relating to psychological factors. The re-hospitalisation data were considered the primary outcome measure, and data regarding the frequency, believability and distress of psychotic symptoms were collected through oral questioning to participants as opposed to standardised measures.

Gaudiano and Herbert (2006) replicated the Bach and Hayes (2002) study using a smaller sample size but including a wider range of outcome measures. Their results found that, compared to an enhanced treatment as usual condition (ETAU), participants who received ACT showed overall greater symptom improvement, including superiority on measures of affective severity, distress associated with hallucinations, and social functioning. Similarly to the Bach and Hayes study, they also found that individuals in the ACT group reported a decrease in the believability of hallucinations, which was not evident in individuals in the ETAU condition. This decrease in believability was also found to be associated with decreased distress, even after controlling for differences in symptom frequency.

Additionally, Gaudiano and Herbert (2006) found that ACT resulted in a 38% reduction in re-hospitalisation rates after four months, relative to ETAU, which is comparable to the 50% reduction that was found by Bach and Hayes (2002). However, the differences in re-hospitalisation rates between the two treatment groups in the Gaudiano and Herbert study did not reach statistical significance in their analysis. Unfortunately, the small sample size of their study meant that it was underpowered to statistically detect some of the more modest between-group differences, which is a significant limitation of the study.

Despite methodological limitations, findings from both these studies suggest that ACT is a promising therapeutic approach for individuals with psychosis. Further controlled research using larger samples is necessary and examination of the mechanisms of change would also be beneficial, especially as neither Bach and Hayes (2002) or Gaudiano and Herbert (2006) directly measured levels of acceptance. The

Voices Acceptance and Action Scale (VAAS) (Shawyer *et al.,* 2007) has recently been developed to assess acceptance-based attitudes and actions in relation to auditory and command hallucinations. Although only preliminary results on the reliability and validity of this measure exist, it shows promise as a useful aid in assessing acceptance of auditory hallucinations in relation to the processes of change in ACT interventions. Initial results from the evaluation of this measure suggest acceptance of auditory hallucinations is negatively correlated with depression and positively related to quality of life (Shawyer *et al.,* 2007). Furthermore, acceptance was not found to be related to severity of auditory hallucinations, indicating that it is not only those with less severe symptoms that accept their voices (Shawyer *et al.,* 2007).

1.4.5 Summary

Acceptance-based approaches aim to change the way individuals relate to difficult or negatively evaluated internal experiences. Rather than changing the form or frequency of thoughts, feelings or images, acceptance-based approaches aim to alter the function of such experiences, and the contexts in which they arise. Techniques such as mindfulness, acceptance and cognitive defusion are utilised within these approaches. Individuals are encouraged to move to a context of deliteralisation, in which internal experiences are viewed for what they are and not necessarily taken to be true interpretations of the experience.

Experiential avoidance is viewed as the opposite of psychological acceptance, and has been described as an unwillingness to remain in contact with internal experiences. It involves persistent attempts to alter the form or frequency of these experiences or the contexts that lead to them. Experiential avoidance has been associated with the

development and maintenance of psychological distress and general psychopathology in both clinical and non-clinical samples. Although often a seeming positive strategy in the short-term, experiential avoidance is thought to paradoxically increase the severity of these internal experiences in the long-term, thus maintaining or exacerbating psychological difficulties and distress, and leading to further avoidance.

Acceptance and Commitment Therapy (ACT) is an example of an acceptance-based psychological approach, and has been empirically investigated within psychosis populations. The aim of ACT is to increase psychological flexibility through the use of acceptance and mindfulness strategies, together with commitment and behaviour change strategies. Experiential avoidance and cognitive fusion are viewed as key processes preventing psychological flexibility. The ultimate aim of psychological flexibility is to allow individuals to engage in valued behaviours despite difficult or aversive internal experiences.

The evidence base for ACT is still in its infancy, however there is growing evidence to suggest that it may be an effective intervention for a wide range of disorders, including psychosis. The research base is promising and some studies have shown that the mechanisms through which ACT works may be distinct from alternative treatments and are consistent with the underlying ACT model.

1.5 Current study

1.5.1 Aim

This study aims to explore factors associated with psychological distress in individuals who have experienced psychosis. It aims to explore the relationships between self-schema, illness beliefs, and experiential avoidance, and to investigate the influence of each of these factors on psychological distress. It is hypothesised that experiential avoidance will mediate both the relationship between self-schema and distress, and between illness beliefs and distress, which if confirmed may support the use of acceptance-based interventions, such as ACT, with this client group.

1.5.2 Research question

How are self-schema, illness beliefs and experiential avoidance related to psychological distress in individuals with psychosis?

1.5.3 Hypotheses

i. Negative self-schema will be associated with negative illness beliefs.

ii. Negative self-schema and negative illness beliefs will be associated with greater experiential avoidance.

iii. Negative self-schema, negative illness beliefs and high experiential avoidance will be associated with greater psychological distress.

iv. Experiential avoidance will mediate the relationship between negative self-schema and psychological distress.

v. Experiential avoidance will mediate the relationship between illness beliefs and psychological distress.

2 METHODOLOGY

2.1 Design

A cross-sectional, quantitative design was employed to address the research questions outlined.

This study forms part of a collaborative research design, in which data were collected for the purposes of two concurrent research studies. A battery of six measures were administered to all participants, data from four of the measures are analysed in the current study and data from the remaining two measures are analysed and reported elsewhere in a separate research study (Weinberg, 2008). This collaborative design was adopted due to the overlap in the use of two of the measures in addressing the separate research questions, and in order to maximise the sample size that could be acquired for both research projects.

2.2 Power analysis

A prospective power analysis was carried out in order to establish the number of participants required in this study to achieve the recommended power level of .80 (Clark-Carter, 2004; Cohen, 1992; Tabachnick & Fidell, 2001) and alpha level of .05 (Cohen, 1992; Green, 1991). A medium effect size was considered to be of interest in the analysis of these data. No previous study had carried out a similar analysis with these variables, therefore, the decision to use a medium effect size was based on studies which had examined correlations between these, or similar, variables. In samples of individuals with psychosis, medium to large effect sizes were found on correlations between measures of depression and measures of negative self-schema

(Smith *et al.,* 2006), and illness beliefs (Watson *et al.,* 2006). No studies were found that had used the Acceptance and Action Questionnaire (AAQ) with this population, but correlations of this measure with depression in other clinical populations have found a medium to large effect size (Hayes, Strosahl, Wilson *et al.,* 2004). In addition, a recent study on the initial scale development of the Voices Acceptance and Action Scale (VAAS), a measure of acceptance-based attitudes and responses to auditory hallucinations, found a large effect size between this measure and depression in a sample of individuals with psychosis (Shawyer *et al.,* 2007).

Path analysis was chosen as the most appropriate technique for analysing these data and addressing the research questions outlined. Path analysis involves a series of multiple regression analyses to test predicted relationships between variables.

There are several different methods for determining the number of participants required in multiple regression analyses. Harris (1985) proposes the following equation to calculate sample size: $\mathbf{N \geq 50 + m}$ (*where m = number of predictor variables).* There are three predictor variables in the current study therefore, according to Harris' equation a sample size of 53 would be required. Cohen (1992) states that 76 participants would be required for a multiple regression analysis with 3 individual predictors. Green (1991) advocates a more conservative formula of $\mathbf{N \geq 50 + 8m}$ for testing the overall fit of a regression model and $\mathbf{N \geq 104 + m}$ for testing the individual predictor variables within a regression model. Using Green's formulae, the current study would need 74 participants to examine the overall fit of the regression model and 107 participants to test individual predictors. If a study is interested in both the overall fit of a model and the contribution of individual predictors within it, it is

recommended that sample size is calculated using both methods and the largest value used (Field, 2005; Tabachnick & Fidell, 2001).

Based on the above parameters and formulae, it was established that it would be optimal to have a minimum of 76 participants in the study, which was the figure suggested by Cohen's equation (1992), and is close to the mean of the different estimations.

2.3 Participants

All participants in this study were individuals who had experienced psychotic symptoms (delusions, hallucinations or other severe thought disturbances). A definitive diagnosis was not necessary for individuals to be included in the study and it was not necessary for individuals to be currently experiencing active psychotic symptoms.

Participants were recruited from NHS and voluntary agency mental health services within the geographical areas of Forth Valley and Fife. Participants were recruited from both outpatient and inpatient services, including Community Mental Health Teams (CMHTs), Community Rehabilitation Teams (CRTs), outreach teams, psychiatric inpatient units (acute and rehabilitation), and voluntary support organisations.

Potential participants were identified by their keyworker or psychiatrist based on the inclusion and exclusion criteria outlined in Table 1.

Table 1: Participant inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
Individuals who have experienced psychotic symptoms *(delusions, hallucinations or other severe thought disturbances).*	*Individuals, who in the opinion of their psychiatrist or keyworker, would be* **unable to provide informed consent.**
Individuals attending NHS or voluntary agency mental health services within the geographical areas of Forth Valley or Fife.	*Individuals, who in the opinion of their psychiatrist or keyworker, are currently* **too distressed**, or **likely to become too distressed, by participation in the study**.
Individuals aged 18 years or older.	**Individuals under 18 years of age.**

2.4 Measures

This study adopted a self-report, quantitative methodology. Six measures were administered to all participants, but as previously outlined only four are analysed in the current study.

2.4.1 Reliability of using self-report measures

It has been argued that individuals with psychosis may not have the ability to provide valid and reliable self-report data (Atkinson, Zibin & Chuang, 1997; Cramer *et al.,* 2000; Melle *et al.,* 2005). Cognitive impairments, lack of insight, denial, unstable mental state, distractibility and interference from psychotic symptoms, have all been suggested as reasons behind the supposed unreliability of self-report measures with this population (Amador *et al.,* 1993; Huppert, Smith & Apfeldorf, 2002; Melle *et al.,* 2005; Wetzler & Marlowe, 1993). However, studies have shown that reliable and valid information about a range of areas, including current psychotic symptoms,

anxiety, depression, and quality of life, can be obtained by administering self-report measures to individuals diagnosed with psychotic disorders (Huppert *et al.,* 2002; Khatri, Romney & Pelletier, 2001; Liraud, Droulout, Parrot & Verdoux, 2004; Voruganti, Heslegrave, Awad & Seeman, 1998).

Self-report measures provide unique information that is not accessible from other methods, such as clinical ratings (Wetzler & Marlowe, 1993). It is also increasingly recognised that an essential part of developing understanding of psychotic experiences is through exploring the views and beliefs of individuals experiencing these symptoms. Therefore, utilising a self-report methodology with this population was viewed as both appropriate and important.

2.4.2 Brief Core Schema Scales (BCSS)

The Brief Core Schema Scales (Fowler *et al.,* 2006) *(Appendix 1)* provide a self-report assessment of schemata concerning self and others in psychosis. It is a 24-item questionnaire that assesses 4 dimensions of self and other evaluation (negative self; positive self; negative other; and positive other). There are 6 items in each of the 4 dimensions and individuals are asked to indicate if they hold each of the 24 beliefs, and if so, to rate how strongly they hold each belief on a 4-point scale (from 1–*believe it slightly* to 4–*believe it totally*). It is a quick and easily administered measure and is currently the only existing scale that assesses positive evaluations of self and others in combination with negative evaluations of self and others (Fowler *et al.,* 2006).

The BCSS demonstrate good internal reliability in both clinical and non-clinical samples, with Cronbach's alpha coefficients ranging from .78 to .88 (Fowler *et al.,*

2006). In addition, test-retest reliability in a non-clinical sample tested three weeks apart, ranged from .70 to .84 for each of the four scales (Fowler *et al.,* 2006). A principal components analysis suggested a four-component solution to the underlying dimensional structure, which reflects independence between the different dimensions of self and other evaluation (Fowler *et al.,* 2006).

The BCSS shows good construct validity, and has demonstrated moderate to strong associations with the Rosenberg Self-Esteem Scale (Rosenberg, 1965) and the defectiveness/shame, mistrust/abuse and social isolation subscales of Young's Schema Questionnaire-Short Form (Young, 1998) (Fowler *et al.,* 2006). The scales also show a degree of independence from mood, which is highlighted as being greater than that of the Rosenberg Self-Esteem Scale (Fowler *et al.,* 2006).

2.4.3 Personal Beliefs about Illness Questionnaire-Revised (PBIQ-R)

The Personal Beliefs about Illness Questionnaire-Revised (Birchwood, Mason, MacMillan & Healy, 1993) *(Appendix 1)* is a 29-item self-report questionnaire that assesses participants' cognitive appraisal of their psychotic illness. Participants' beliefs are assessed in 5 domains: ***entrapment*** which includes six items and assesses the extent to which a person feels their illness prevents them from doing things and moving on with their life; ***shame*** which includes six items and assesses the extent to which an individual feels ashamed by their illness or feels others view them negatively because of their illness; ***loss*** which includes seven items and assesses the extent to which a person feels that certain areas of their life have changed for the worse because of their illness; ***group fit*** which includes five items and assesses the extent to which a person feels socially excluded by their illness; and ***control over***

illness which includes five items and assesses the extent to which a person feels they have control over their illness. Each item is rated on a 4-point Likert scale ranging from 'strongly agree' to 'strongly disagree'. Higher scores on all subscales represent greater negative appraisals of the psychotic experience. For the purposes of this study each of these subscales will be summed in order to provide a global measure of beliefs about psychosis.

Internal reliability for the original PBIQ ranged from .51 to .71 across the different subscales, and test-retest reliability ranged from .77 to 1.00 (Birchwood *et al.,* 1993). The PBIQ-R is an extended and revised version of the original 16-item PBIQ. Psychometric data regarding the PBIQ-R is currently unpublished, but the measure has been recommended as a more reliable measure by the main author (M.Birchwood, personal communication, 21 November 2007).

2.4.4 Acceptance and Action Questionnaire-II (AAQ-II)

The Acceptance and Action Questionnaire-II (Bond *et al.,* 2008) *(Appendix 1)* is a 10-item self-report measure of experiential avoidance. The AAQ-II is a revised version of the original AAQ-I developed by Hayes, Strosahl, Wilson *et al.,* 2004. Items on the AAQ measure various aspects of the experiential avoidance concept, including need for emotional and cognitive control, avoidance of negative private events, inability to take needed action in the face of private events, and forms of cognitive entanglement, such as excessively negative evaluations of private experiences or negative self references (Hayes, Strosahl, Wilson *et al.,* 2004). Items are rated on a 7-point scale from 'never true' to 'always true'. All items load onto a single factor (F.Bond,

personal communication, 29 January 2008), with higher scores on this scale representing greater experiential avoidance and less psychological flexibility.

The development of the AAQ-II was primarily to address the reliability problems of the original AAQ-I in some populations (F.Bond, personal communication, 29 January 2008). The AAQ-II correlates highly with the original AAQ-I (r = .82; Bond *et al.,* 2008). The AAQ-II has been shown to have consistently good internal reliability across seven samples with a total of nearly 3,300 participants, with a mean Cronbach's alpha coefficient of .83 (range .76 to .87) (Bond *et al.,* 2008). The scale has also demonstrated good test-retest reliability, with a Pearson's correlation coefficient of .80 for three-month follow-up, and .78 for 12-month follow-up (Bond *et al.,* 2008).

The AAQ-II demonstrates good validity, and has been shown to longitudinally predict scores on the Beck Depression Inventory (BDI; Beck & Steer, 1987) and General Health Questionnaire (Goldberg, 1978) (F.Bond, personal communication, 18 June 2007 and 29 January 2008). Confirmatory factor analysis models indicate that the AAQ-II is measuring a construct that is distinct from depression, anxiety or general mental health (F.Bond, personal communication, 29 January 2008).

2.4.5 Clinical Outcomes in Routine Evaluation outcome measure (CORE)

The Clinical Outcomes in Routine Evaluation outcome measure (Evans *et al.,* 1998) *(Appendix 1)* is a 34-item self-report measure that assesses distress across 3 dimensions: subjective well-being; commonly experienced problems or symptoms;

and life/social functioning. In addition to these three dimensions it also includes items that assess risk to self and to others. Individuals are asked to rate each item depending on how often they have felt like this over the previous week. Items are scored on a 5-point scale ranging from 'not at all' to 'most or all of the time'. The total score acts as a global index of distress, however scores for each of the dimensions can also be used separately where required.

The scale has been found to have good internal reliability when assessed in both clinical and non-clinical samples. Cronbach's alpha coefficient for individual subscales and global score has been shown to range from 0.75 to 0.94 (Evans *et al.*, 2002). Its validity has also been established in a number of studies (Barkham *et al.*, 2001; Evans *et al.*, 2002; Evans *et al.*, 2000). The CORE has been found to correlate highly with other measures of psychological distress such as, the Beck Depression Inventory (BDI; Beck & Steer, 1987), the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1967), and the Beck Hopelessness Scale (BHS; Beck & Steer, 1988) (Cahill *et al.*, 2006; Evans *et al.*, 2002; Leach *et al.*, 2006).

2.4.6 Other measures

The Valued Living Questionnaire (VLQ; Wilson, Sandoz, Kitchens & Roberts, 2002) and the Psychotic Symptom Rating Scales (PSYRATS; Haddock, McCarron, Tarrier & Faragher, 1999) were also administered to all participants, but data from these were analysed separately as part of a different research study.

2.5 Procedure

Participants were recruited from NHS or voluntary agency mental health services within the geographical areas of Forth Valley and Fife. Potential participants were identified through their keyworker or psychiatrist (based on the inclusion and exclusion criteria outlined in Table 1), and were provided with a written information sheet about the study *(Appendix 2).* All potential participants were given a minimum of 24 hours to consider the information before being contacted directly by the researcher to ask whether they wished to participate.

If individuals were agreeable to taking part in the research, a mutually convenient meeting time was arranged between participant and researcher. Researchers met with participants at either an NHS clinic or inpatient location; at a voluntary agency location; or where this was not possible, and where appropriate, a home visit was arranged. All referral forms *(Appendix 3)* included a question regarding whether there were any risk factors regarding a lone home visit with the referred participant, and in all home visit situations the researcher adhered to the NHS lone working protocol of either NHS Forth Valley or NHS Fife.

A standard procedure was followed in the meetings between researcher and participant. This was considered particularly important since the data were collected by two different researchers. All participants were firstly offered the chance to re-read a copy of the information sheet and ask any questions they may have about the study. Participants were informed that all information they provided would be confidential. However, it was also verbally explained to participants that if the researcher had any concerns about the participant's risk to self or others, or their well-being as a result of

taking part in this study, then this would need to be fed back to their keyworker or psychiatrist. If participants were happy to continue after this, then they were asked to sign a consent form *(Appendix 4)*, and some basic demographic information regarding the participant was recorded. This information included date of birth, gender, diagnosis *(if known)*, whether they were currently an inpatient *(due to mental health problems)* and number of previous psychiatric hospitalisations *(if applicable)*.

Before completing the measures it was verbally explained to participants that participation was entirely voluntary and they were free to withdraw from the study at any time without penalty, or to take a break if required. They were also informed that there were no right or wrong answers to any of the questions and participants were simply to answer questions based on their own feelings and beliefs. The six measures were then administered in a standard order *(see Table 2)*.

Table 2: Standard order that measures were administered.

Order	Measure
1	Acceptance and Action Questionnaire-II (AAQ-II)
2	Brief Core Schema Scales (BCSS)
3	Psychotic Symptom Rating Scales (PSYRATS)
4	Personal Beliefs about Illness Questionnaire–Revised (PBIQ-R)
5	Clinical Outcomes in Routine Evaluation (CORE)
6	Valued Living Questionnaire (VLQ)

With the exception of the Psychotic Symptom Rating Scales, all measures could be completed by the participant themselves, independent of the researcher. However, in all cases the researcher remained in the same room as the participant while the measures were being completed, to ensure measures were completed appropriately

and in case the participant had any questions. However, if the participant indicated a preference for the researcher to read the measures aloud to them, or to complete the measures with them, then this was carried out and it was recorded that the measures had been administered in this way. The time taken for participants to complete all of the measures was also recorded.

Each participant's psychiatrist was informed in writing that the individual had participated in the study. Participants were also offered the opportunity to receive a summary of the research findings once completed.

2.6 Participant confidentiality

Each participant was assigned an identification number, which was used to code all of the measures so that participant names or identifying information were not attached to any of their questionnaire responses. No identifying information was included in any computer databases or stored electronically. All participant information, consent forms and questionnaires were stored in a locked filing cabinet within the psychology department of either NHS Forth Valley or NHS Fife.

2.7 Ethical issues

Individuals with psychosis represent a vulnerable population, and the experience of psychotic symptoms is often associated with cognitive and emotional impairments. Due to this, a number of ethical considerations were taken into account when planning this study, in particular whether participation in the study would excessively burden

individuals, or cause them to become distressed, and whether participants would have capacity to consent to participation.

To reduce any potential burden on participants, measures were selected that covered the relevant areas that the research was investigating, whilst being relatively quick to complete. Participants were encouraged to take their time completing measures and were offered breaks if necessary.

Due to the nature of some of the questions in this research, which require participants to reflect on their experiences of psychosis, it was considered possible that some individuals may become distressed as a result of taking part in the study. Participants were advised before opting-in to the study, that they could refuse to answer any questions they found sensitive or upsetting, and could also withdraw from the study at any time. In the event that any participant experienced distress as a result of taking part in the study, then it was agreed that the researcher would contact the individual's keyworker or other relevant health care professional so that the participant could be offered additional support to help alleviate their distress. This was made explicit to all participants before they consented to take part in the study. It was also made clear to all participants before they opted-in to the study, that should the researcher have any concerns regarding the participants risk to self or risk to others, then this information would be passed onto their keyworker or psychiatrist.

Given the vulnerabilities and impairments associated with individuals with psychosis, it was considered important to keep all information as clear and simple as possible, whilst at the same time ensuring that participants had a full understanding of the study

and what was expected of them. In order to give participants the opportunity to consider the information about the study and make an informed decision about whether they wished to participate, a minimum of 24 hours was given to each participant from receiving the information sheet about the study to being asked to opt-in. In addition to receiving a written participant information sheet, which was kept as clear and simple as possible, all participants were offered an additional verbal explanation for the study by the researcher and given the opportunity to ask questions.

2.7.1 Ethical approval

The proposal for this research was reviewed by the Tayside Committee on Medical Research Ethics A, part of the Fife, Forth Valley and Tayside NHS Research Ethics Service. After reviewing this proposal, this committee granted approval for this research study to be carried out *(Appendix 5).* Approval was also granted from the respective Research and Development (R & D) office within each NHS Trust *(Appendix 5).*

3 RESULTS

3.1 Participants

Data were collected from 84 participants, 42 of whom were female and 42 male. The age range of participants was 21 to 71 years and the mean age was 43 years (SD = 12.15). All participants had experienced psychotic symptoms, and information regarding diagnoses were collected from the participants themselves and from the referral forms, which were usually completed by the participant's keyworker or psychiatrist. These diagnoses were not checked against participant's medical case notes. In situations where the participant's view of their diagnosis differed from that of their referrer, then the diagnosis as stated by the referrer was reported. The most common diagnosis amongst the sample was schizophrenia, which was reported in 53.5% of cases (n=45), and this included diagnoses of paranoid schizophrenia, which accounted for 7.1% (n=6) of this figure. Additional diagnoses within the sample included bipolar affective disorder (23.8%; n=20), schizoaffective disorder (6%; n=5), delusional disorder (2.4%; n=2), psychotic depression (1.2%; n=1) and borderline personality disorder (1.2%; n=1). A general diagnosis of psychosis was reported for 3.6% (n=3) of participants and diagnoses were unknown in 8.3% (n=7) of the sample.

Data were collected from the geographical areas of Forth Valley and Fife, and exactly 50% (n=42) of participants were recruited from each area. Information on current inpatient status and previous psychiatric admissions was also recorded. Within the sample, 39.3% (n=33) were inpatients within psychiatric wards at the time of participating in the study, and the remaining 60.7% (n=51) were referrals from outpatient services. Five participants (5.95%) had no history of psychiatric

admissions, 11 had one previous admission (13.1%), 45 had between two and five previous admissions (53.57%) and 23 had six or more previous psychiatric admissions (27.38%).

The mean length of time to complete the measures was 32 minutes (SD = 11.65), and 47.6% (n = 40) of participants self-completed the measures, although the researcher was present during completion. The remaining 52.4% of the sample requested assistance with completing the measures, and this primarily consisted of the researcher reading the questions aloud to participants.

3.2 Statistical Analyses

Data were analysed using the Statistical Package for the Social Sciences (SPSS) Version 14.0 for Windows. There were no missing data.

3.2.1 Preliminary Analyses

Preliminary analyses were carried out to evaluate the data against the assumptions of normality, linearity, and homoscedasticity. Homoscedasticity refers to the assumption in regression analyses, that the residuals at each level of the predictor variables will have similar variance (Field, 2005). For grouped data, as opposed to regression analyses, the equivalent assumption would be homogeneity of variance (Tabachnick & Fidell, 2001).

3.2.1.1 Normality

Normality of the variables was assessed through examination of histograms, and also using the Kolmogorov-Smirnov statistical test. Results from the Kolmogorov-Smirnov test indicated that one of the predictor variables (BCSS - Negative self subscale) and the outcome variable (CORE) were non-normally distributed ($p<.05$). However, Field (2005) suggests that significance on this test does not necessarily indicate whether this deviation from normality is large enough to bias statistical analyses. Therefore, data were analysed further by assessing the degree of skewness and kurtosis present, two key components of normality. In order to standardise the reported values for skewness and kurtosis, they were converted into z-scores, using the following formulae:

$$Z\text{skewness} = \frac{S}{SE_{skewness}} \qquad Z\text{kurtosis} = \frac{K}{SE_{kurtosis}}$$

Where S is the reported value for skewness, K is the reported value for kurtosis, and SE is the standard error (Field, 2005; Tabachnick & Fidell, 2001). Field (2005) suggests that z-scores greater than 2.58 for both skewness and kurtosis should be considered significant at $p<.01$. Analysis of the data using these formulae revealed that significant kurtosis was not present in any of the variables in this study, however, one of the predictor variables (BCSS – Negative self subscale) was found to have significant positive skewness ($z = 3.29$, $p<0.01$).

3.2.1.2 Data transformation

Data transformations are recommended in cases where the assumption of normality is violated (Tabachnick & Fidell, 2001). The aim of data transformation is to reduce the

impact of extreme scores, whilst preserving the relationships between them. Relationships between scores are not altered as a result of data transformation, since the same transformation is carried out on each of the values within a variable (Field, 2005).

The three most common types of data transformation are log, square root, and reciprocal. Log transformation involves taking the logarithm of a set of values. Log transformations are a good way of reducing positive skew in a data set, as they compress the right tail of the distribution more than the left (Field, 2005). Square root transformations involve taking the square root of each score. Taking the square root of larger values has more of an effect than smaller values therefore, by transforming data in this way, any large scores will be brought closer to the centre of the distribution (Field, 2005). Reciprocal transformation involves dividing one by each score, thereby reducing the impact of large scores. Transforming data in this way reverses scores, so that what were large values originally, become small values after transformation and vice versa (Field, 2005).

Log, square root and reciprocal transformations were carried out on the two variables in the current study found to have non-normal distribution (BCSS – Negative self subscale and the CORE). In both cases square root transformation resulted in the most improvements in normality. Although in the case of the BCSS, the square root transformation, despite improving the normality of the data, still did not result in non-significance on the Kolmogorov-Smirnov test ($p<.05$). However, the transformed data did result in both non-significant skewness and kurtosis ($p>.01$).

3.2.1.3 Linearity, homoscedasticity, multicollinearity and residuals

Linearity was assessed through examination of scatterplots for each pair of variables. From examination of these, it appeared that all variables were linearly related. Screening of the residuals produced by the regression analyses, including examination of normal probability plots and scatterplots, were also carried out to assess for homoscedasticity, outliers, and multicollinearity. Residuals were examined following regression analyses using both the untransformed and transformed data. This is recommended in order to ensure that the transformation of data does not then produce difficulties or problems in a different area (Cohen, Cohen, West & Aiken, 2003). In all cases the assumption of homoscedasticity appeared to have been met, and multicollinearity was not present in any of the analyses. Outliers were identified through examination of boxplots, normal probability plots and z-scores. Tabachnick and Fidell (2001) suggest that cases with z-scores in excess of 3.29 ($p<.001$) should be considered potential outliers. In all residual analyses, no cases exceeded this standardised score, therefore there was no reason to suggest that data were unduly biased by any outlying cases.

As outlined above, regression analyses were carried out using both transformed and untransformed data, and comparison of the two sets of results revealed very little differences. Therefore, it can be assumed that violation of the assumption of normality in these data was unlikely to bias statistical analyses. Indeed, Allison (1999) states that the assumption of normality is the least important of all assumptions in multiple regression, and given a moderate sample size can be dispensed with entirely. However, given that the square root data transformation in this study resulted in significant improvements in the normality of two variables, and examination of the

residuals indicated that this transformation was without negative impact on any of the other assumptions, it was decided that the transformed data would be reported in the statistical analyses.

3.2.2 Descriptive data

Descriptive data regarding the four variables are included in Table 3. For the purpose of presenting descriptive statistics, the untransformed data are reported. This was done to facilitate interpretation and enhance clarity of comparison with other published data using these measures. However, for the correlation and regression analyses, the transformed data for the BCSS and the CORE are utilised. The mean scores for each of the variables are presented along with the standard deviation and minimum and maximum scores obtained from the sample. The possible range of scores that could be obtained on each of the measures is also included in this table.

Table 3: Descriptive data for BCSS-NS, PBIQ-R, AAQ-II and CORE.

Variable	Mean	Standard deviation	Minimum score	Maximum score	Range of measure
Brief Core Schema Scales – Negative self subscale (BCSS-NS)	5.07	4.76	0	17	0-24
Personal Beliefs about Illness Questionnaire-Revised (PBIQ-R)	71.61	15.43	30	102	29-116
Acceptance and Action Questionnaire (AAQ-II)	40.18	16.25	10	70	10-70
Clinical Outcomes in Routine Evaluation (CORE)	42.89	25.06	2	102	0-136

Total scores for the Personal Beliefs about Illness Questionnaire-Revised (PBIQ-R) and the Clinical Outcomes in Routine Evaluation (CORE) are used for the purposes of addressing the research hypotheses outlined. However, both of these measures can be broken down into various individual subscales (as outlined in sections 2.4.3 and 2.4.5) and descriptive data for each of these subscales are presented in Table 4. Data regarding the remaining three subscales of the Brief Core Schema Scales (BCSS) are also presented in Table 4.

Table 4: Descriptive data for subscales of PBIQ-R, CORE and BCSS.

Variable	Mean	Standard deviation	Minimum score	Maximum score	Range of subscale
PBIQ-R Entrapment subscale	15.15	3.85	6	23	6-24
PBIQ-R Shame subscale	14.65	3.44	6	22	6-24
PBIQ-R Loss subscale	17.82	4.04	7	25	7-28
PBIQ-R Group fit subscale	11.52	2.86	5	19	5-20
PBIQ-R Control over illness subscale	12.45	3.30	5	20	5-20
CORE Well-being subscale	6.58	4.07	0	16	0-16
CORE Problem / symptom subscale	17.56	11.62	0	39	0-48
CORE Life / social functioning subscale	16.89	8.99	0	41	0-48
CORE Risk subscale	1.86	2.71	0	10	0-24
BCSS – Positive self subscale (BCSS-PS)	9.11	6.26	0	24	0-24
BCSS – Negative others subscale (BCSS-NO)	6.92	5.83	0	24	0-24
BCSS – Positive others subscale (BCSS-PO)	11.04	5.38	1	24	0-24

3.2.3 Bivariate Correlations

Hypotheses 1 to 3 were assessed using Pearson product-moment correlations. A correlation matrix is presented in Table 5, with Pearson correlation coefficients (r) reported for each pair of variables, along with significance levels. As outlined previously, in these and all further statistical analyses, the square root transformed data for the variables of BCSS - Negative self and the CORE have been used.

Table 5: Correlation matrix of variables BCSS-NS, PBIQ-R, AAQ-II and CORE.

Variable	BCSS – negative self	PBIQ-R	AAQ-II	CORE
BCSS – negative self	------	**.73** p<.001	**.66** p<.001	**.71** p<.001
PBIQ-R	------	------	**.77** p<.001	**.77** p<.001
AAQ-II	------	------	------	**.83** p<.001
CORE	------	------	------	------

Hypothesis 1: *Negative self-schema will be associated with negative illness beliefs.*

The data shows that a significant positive relationship exists between negative self-schema and illness beliefs (r = .73, p (one-tailed) <.001), therefore, hypothesis 1 is supported.

Hypothesis 2: *Negative self-schema and negative illness beliefs will be associated with greater experiential avoidance.*

Experiential avoidance was significantly correlated with negative self-schema (r = .66, p (one-tailed) <.001) and illness beliefs (r = .77, p (one-tailed) <.001). Both of

these correlations were positive, indicating higher scores on one variable was associated with higher scores on the other, therefore, hypothesis 2 is supported.

Hypothesis 3: *Negative self-schema, negative illness beliefs, and high experiential avoidance will be associated with greater psychological distress.*

Psychological distress was significantly correlated with negative self-schema ($r = .71$, p (one-tailed) $<.001$), illness beliefs ($r = .77$, p (one-tailed) $<.001$), and experiential avoidance ($r = .83$, p (one-tailed) $<.001$). All correlations were positive, thereby confirming hypothesis 3.

3.2.4 Path analysis

Path analysis was used to assess hypotheses 4 and 5. Path analysis is an extension of multiple regression, and allows variables to act as both independent and dependent variables (Norman & Steiner, 1998). It provides information regarding the strength of relationships between variables, and can be used to analyse and compare direct and indirect effects (Allison, 1999).

In this study, path analysis was carried out using a series of standard multiple regression analyses in SPSS. This method of carrying out path analysis has been outlined by a number of authors (Bramwell, 1996; Cramer, 2003; Frazier, Tix & Barron, 2004). Three multiple regression analyses were carried out, and the results from each of these are presented in Table 6.

Table 6: Multiple regression analyses.

	Predictor variables	B *(Unstandardised coefficient)*	Std. Error B	β *(Standardised coefficient)*	t	Sig.
Regression 1 *Outcome variable = PBIQ-R*	BCSS-NS	9.29	.97	.73	9.61	.000
Regression 2 *Outcome variable = AAQ-II*	BCSS-NS	2.91	1.36	.22	2.14	.035
	PBIQ-R	.64	.11	.61	6.04	.000
Regression 3 *Outcome variable = CORE*	BCSS-NS	.35	.14	.21	2.46	.016
	PBIQ-R	.03	.01	.21	2.18	.032
	AAQ-II	.07	.01	.53	5.89	.000

Regression 1: $R^2 = .53$, adj $R^2 = .52$, $F(1, 83) = 92.31$, $p < .001$
Regression 2: $R^2 = .61$, adj $R^2 = .60$, $F(2, 83) = 63.66$, $p < .001$
Regression 3: $R^2 = .75$, adj $R^2 = .74$, $F(3, 83) = 79.76$, $p < .001$

Figure 1 shows the path model used to assess hypotheses 4 and 5. The path coefficients along each pathway are the standardised beta coefficients (β) obtained from the multiple regression analyses (Bramwell, 1996). These coefficients indicate the strength of the relationship between variables. Statistical significance of each of the path coefficients is indicated by the use of asterisks. Error terms (e) were also determined for each regression analysis within the path model, and these were calculated by taking the square root of $1 - R^2$ (Bramwell, 1996). Error terms provide an indication of the success of the model, as they represent how much of the variance within the model remains unexplained after the regression analyses have been carried out (Bramwell, 1996). Error terms are entered on the path model at each dependent variable.

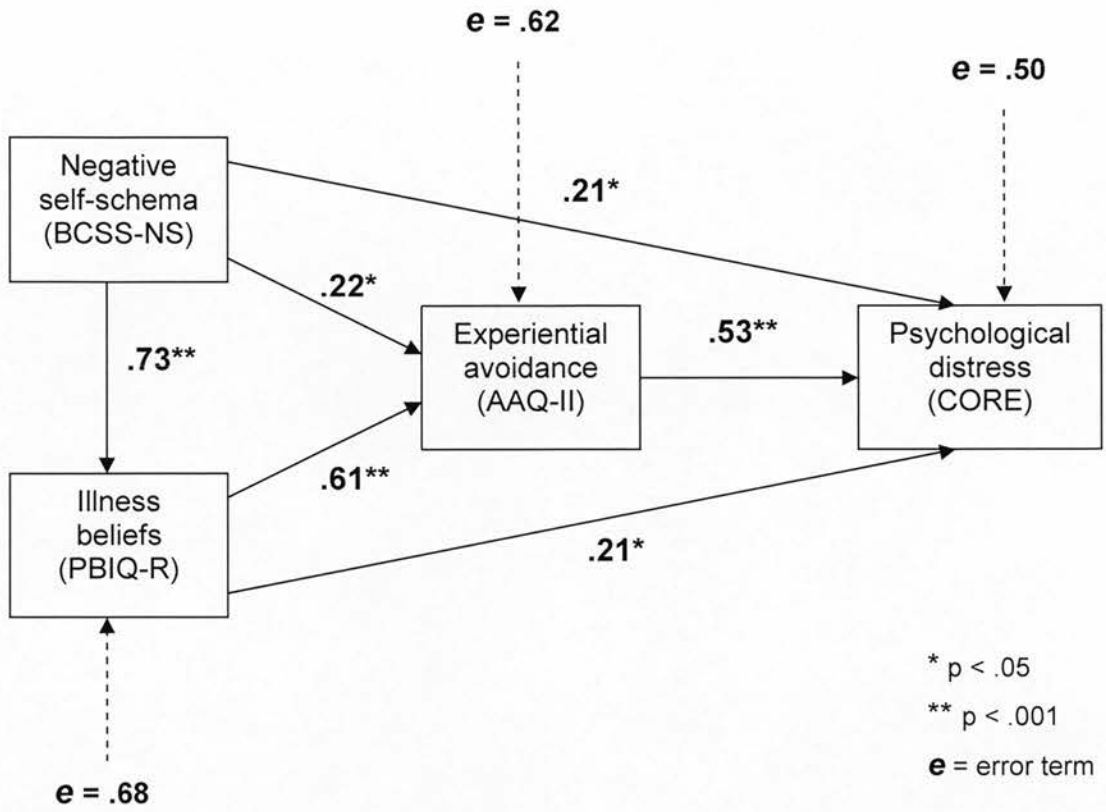

Figure 1: Path diagram of the relationships between negative self-schema, illness beliefs, experiential avoidance and psychological distress, showing path coefficients and error terms.

The path coefficients represent the strength of relationship between each pair of variables. However, in path analysis the indirect pathways between variables are also of interest, and these can be calculated by multiplying the path coefficients along each of the paths between the relevant variables (Bramwell, 1996). Hypotheses 4 and 5 propose that experiential avoidance will act as a mediator variable within the model. A mediator variable can be described as one that explains the relationship between a predictor (independent) and outcome (dependent) variable (Frazier *et al.,* 2004). Therefore, to examine these hypotheses the strength of the indirect pathways through experiential avoidance will be calculated and compared to the strength of direct relationships within the model.

Hypothesis 4: *Experiential avoidance will mediate the relationship between negative self-schema and psychological distress.*

In order to assess support for this hypothesis, the strength of the direct pathway between negative self-schema and psychological distress will be compared to the indirect pathway through experiential avoidance. This indirect pathway can be calculated by multiplying the path coefficient between negative self-schema and experiential avoidance (.22) by the path coefficient between experiential avoidance and distress (.53). Thus, the strength of the indirect pathway is calculated as .12. However, the direct pathway between negative self-schema and psychological distress is .21. Therefore, the hypothesis that experiential avoidance mediates the relationship between negative self-schema and psychological distress is not supported by this data.

Hypothesis 5: *Experiential avoidance will mediate the relationship between illness beliefs and psychological distress.*

Similarly, hypothesis 5 was assessed by comparing the strength of the direct pathway between illness beliefs and psychological distress, with the indirect pathway through experiential avoidance. The indirect pathway was calculated by multiplying the path coefficient between illness beliefs and experiential avoidance (.61) by the path coefficient between experiential avoidance and psychological distress (.53). Thus, the strength of the indirect pathway is calculated as .32. The strength of the direct pathway between illness beliefs and psychological distress is .21. These data lend partial support to the hypothesis that experiential avoidance mediates the relationship between illness beliefs and psychological distress. The hypothesis is only partially supported since the direct pathway between illness beliefs and psychological distress is also significant.

3.2.4.1 Success of the path model

By examining the error variance within the path model, the overall success of the model can be assessed. As outlined previously, error terms provide an indication of how much of the variance within the variables remains unexplained by the hypothesised relationships in the model (Bramwell, 1996). The error term may represent different types of error, such as error arising from measurement of the variables or general model error, including omission of relevant variables or incorrect ordering of factors within the model (Bramwell, 1996). Error variance is usually considered high if it is above .80 (Bramwell, 1996).

Figure 1 shows that within the model presented in the current study, all error terms are less than .70, thus indicating moderate error variance. This suggests that the model is relatively successful in accounting for the variance between the variables. The error term is lowest for the regression analysis of negative self-schema, illness beliefs and experiential avoidance onto distress (e = .50). This indicates that these three variables can be considered to account for 50% of the variance in distress within this sample. Additionally, error terms indicate negative self-schema can be considered to account for 32% of the variance in illness beliefs (e = .68), and illness beliefs and negative self-schema together can be considered to account for 38% of the variance in experiential avoidance (e = .62).

4 DISCUSSION

4.1 Summary and interpretation of findings

The aim of the present study was to explore factors associated with psychological distress in a sample of individuals who had experienced psychosis. The psychological factors investigated were schemas, illness beliefs and experiential avoidance. The influence of each of these factors on distress, and the interrelationships between them were examined.

Pearson product-moment correlations showed that there were significant positive correlations between all four variables in the study. Each variable was scored in the same direction, so that high scores indicated dysfunction, or negative responses. Thus, the significant positive correlations indicate that a high score on any one of the variables is likely to be associated with a high score on another.

The current study hypothesised that negative self-schema would be associated with negative illness beliefs, and that high scores on both these factors would be associated with greater experiential avoidance. In addition, it was hypothesised that negative self-schema, negative illness beliefs and high experiential avoidance would all be associated with increased distress. The significant, positive correlations found between the variables therefore provide support for each of these first three hypotheses.

Indirect and direct relationships between all four of the variables were tested using path analysis. A model of the hypothesised relationships was presented and then

tested as to its goodness of fit with the data. The model presented was based on previous research findings and an underlying theoretical rationale. Data demonstrated a number of significant direct and indirect relationships between the variables. As with the correlations, all relationships within the model were positive. Overall, the model was considered relatively successful in accounting for variance in the variables, as all error terms were <.70. Specifically, the three variables of negative self-schema, illness beliefs and experiential avoidance were found to account for a significant proportion of the variance in distress (50%; e = .50). This suggests that the proposed model was successful in highlighting three important psychological factors in explaining distress amongst individuals with psychosis.

Negative self-schema, illness beliefs and experiential avoidance were all found to directly contribute to the variance in psychological distress. The strongest direct pathway to distress was from experiential avoidance. This finding suggests that experiential avoidance may have a central role in determining levels of distress in individuals who have experienced psychosis. This is consistent with findings from other clinical populations, which have demonstrated experiential avoidance to be a significant predictor of distress, depression and general psychopathology (Chawla & Ostafin, 2007; Hayes, Strosahl, Wilson *et al.,* 2004; Plumb *et al.,* 2004).

Within the path model, a strong direct relationship was found between negative self-schema and illness beliefs. This supports the significant positive correlation that was found between the two variables, and indicates that individuals with negative self-schematic beliefs are more likely to interpret the experience of psychosis in a negative way. This finding is consistent with literature regarding the cognitive model, which

suggests that underlying schemas may inform surface-level beliefs (Beck, 1976; Beck *et al.,* 1979).

Negative self-schema and illness beliefs were both found to be related to experiential avoidance. Relationships were positive indicating that individuals with negative self-schema and negative illness beliefs were more likely to show increased experiential avoidance. This finding is consistent with previous research which has found that avoidant coping behaviour is associated with both negative self-schema (Drayton *et al.,* 1998; Tait *et al.,* 2004) and negative beliefs about psychosis (Chadwick & Birchwood, 1994, 1995; Romme *et al.,* 1992).

The relationship between illness beliefs and experiential avoidance ($p<.001$) was found to be stronger than the relationship between negative self-schema and experiential avoidance ($p<.05$). This finding suggests that negative beliefs about psychosis may be a greater contributor to experiential avoidance than negative evaluative beliefs about the self (self-schema).

The current study hypothesised that experiential avoidance would act as a mediator between negative self-schema and distress, and between illness beliefs and distress. A mediator variable is one that accounts for a relationship between a predictor and an outcome variable (Frazier *et al.,* 2004). Therefore, evidence in support of a mediator variable would suggest that some of the association between a predictor and outcome could be explained by the inclusion of this variable. Thus, within the proposed model, the indirect pathways through experiential avoidance were hypothesised to be more

strongly associated with distress, than the direct pathways between negative self-schema and distress, or between illness beliefs and distress.

Findings did not support the hypothesised role of experiential avoidance as a mediator between negative self-schema and distress. The direct relationship between these variables was found to be stronger than the indirect relationship through experiential avoidance. Therefore, data suggests that negative self-schema is best conceptualised as providing a direct contribution to variation in distress within this population, as well as being a predictor of greater negative beliefs about psychosis.

Findings partially supported the hypothesis that experiential avoidance would mediate the relationship between illness beliefs and distress. This hypothesis was only partially supported because although the indirect relationship through experiential avoidance was stronger than the direct relationship, this direct relationship was still significant. Therefore, data suggests that the relationship between illness beliefs and distress can be best explained by both a direct effect and an indirect effect through experiential avoidance.

4.2 Clinical Implications

Increasing our understanding of factors that may predict distress in individuals with psychosis has a number of important clinical implications. The presence of distress in this population has been found to be common (Birchwood & Iqbal, 1998; Birchwood, Iqbal *et al.,* 2000; Rooke & Birchwood, 1998), and is associated with a range of negative outcomes, such as increased risk of suicide, relapse and exacerbation of psychotic symptoms (Birchwood & Iqbal, 1998; Johnson, 1988; Jones *et al.,* 1994).

Therefore, understanding more about the processes that contribute to distress within this population is of key importance, as this may inform therapeutic interventions and consequently, influence outcomes.

Distress has traditionally been viewed as an inevitable consequence of the experience of psychosis, and interventions were primarily focused on symptom reduction. However, distress has been shown to occur independently of psychotic symptoms (Birchwood, Iqbal *et al.,* 2000), and for some individuals the occurrence of psychotic symptoms does not necessarily result in significant levels of distress (Romme & Escher, 1996). This has resulted in a shift away from viewing outcomes purely in terms of symptom severity, and instead psychological outcomes such as distress, are increasingly viewed as central.

In addition, mental health services for individuals with psychosis are increasingly being influenced and driven by the concept of 'recovery'. Recovery is conceptualised as much more than purely symptom improvement, and a range of social, psychological and functional outcomes that may be important to the individual are emphasised. It has been highlighted that recovery may occur even in the absence of symptom improvement (Anthony, 1993). Psychological distress is viewed as critical in influencing quality of life and functional outcomes. Therefore, research focusing on distress as an outcome variable, and exploring factors which contribute to this, fits appropriately within the recovery framework.

The current study examines both direct and indirect pathways to distress. This is of importance, since it is highly likely that distress is associated with a number of

possible variables, as well as being influenced by indirect and complex interrelationships between various factors. Rarely within psychology are relationships between factors simple and direct, therefore the importance of modelling specific interrelationships between variables has been emphasised (Bramwell, 1996; Breakwell, 1994).

Negative self-schema, beliefs about psychosis, and experiential avoidance, were all found to have significant, direct relationships with distress. This suggests that by targeting therapeutic interventions at these factors, distress may be reduced. In addition, results suggest that experiential avoidance may have the strongest direct relationship with distress. Therefore, this may indicate that even with continuing negative self-schema and illness beliefs, psychological distress within this population may be diminished by reducing experiential avoidance.

Experiential avoidance is recognised as a central theme within acceptance-based interventions, such as ACT (Hayes *et al.,* 1999; Hayes *et al.,* 1996). It is described as an unwillingness to remain in contact with particular private experiences, and involves persistent attempts to alter the form or frequency of these experiences (Hayes *et al.,* 1999). Therapeutic techniques include undermining the literal meaning of private experiences, so that thoughts and related emotions are experienced for what they are, not what they say they are (Hayes *et al.,* 1999). Ultimately, interventions that address experiential avoidance attempt to change the way individuals interact with, and relate to, their internal experiences by constructing alternative contexts for such experiences. The presence of any particular internal experience is in itself not seen as problematic, but rather difficulties arise from its contextually established functioning

and meaning (Hayes, 2004). For example, problematic contexts would be seen as those in which the literality of language dominates over direct experiential responding, or social contexts which support the evaluation of certain experiences as 'good' or 'bad' (Hayes *et al.,* 1999). Instead, ACT encourages the development of contexts characterised by willingness or acceptance of internal experiences, and contexts which are more likely to support the occurrence of valued behaviour (Hayes, 2004; Hayes *et al.,* 2006; Hayes *et al.,* 1999).

Interventions that aim to reduce experiential avoidance, conversely aim to increase psychological acceptance, and movement towards valued goals. Therefore, experiential avoidance is not seen in itself as an outcome goal, but rather it is conceived as a process goal, through which greater psychological flexibility and valued behaviour occurs (Blackledge & Hayes, 2001).

Acceptance-based interventions that are designed to target experiential avoidance have demonstrated promising but preliminary results for a variety of psychological conditions, including psychosis (Bach & Hayes, 2002; Gaudiano & Herbert, 2006; Hayes *et al.,* 2006; Ost, 2008).

The finding that each of the psychological variables investigated may uniquely and independently contribute to the variance in distress, would seem to provide support for both acceptance-based interventions and cognitive therapy. The relationships between the variables are also of clinical interest. These findings appear to indicate that focusing interventions at certain variables may consequently result in changes in other related variables, which may in turn reduce distress.

There are obvious differences between cognitive therapy and acceptance-based approaches, especially with regard to the mechanisms through which change is presumed to occur. However, similarities between the two approaches have also been highlighted (Baer, 2003; Chadwick, 2006; Gaudiano, 2005). In particular, both interventions are described as facilitating a detached or decentred view of internal experience, such as thoughts (Baer, 2003; Chadwick, 2006; Teasdale *et al.,* 2002). In cognitive therapy, this observation of thought processes is conceptualised as a mechanism through which thought content is modified or altered, rather than the primary mechanism of therapeutic change (Teasdale *et al.,* 2002). However, in acceptance-based approaches, this process of decentring is used as a means of attempting to change the way individuals interact with, or relate to, their internal experiences (Hayes *et al.,* 2006). Despite the differences between the two approaches, it is increasingly recognised that they may be combined in order to increase treatment effectiveness (Bach, Gaudiano, Pankey, Herbert & Hayes, 2006; Baer, 2003; Chadwick, 2006; Gaudiano, 2005).

Findings from the current study suggest that different factors contribute to distress within this population. Therefore, interventions that aim to address more than one of these factors within the same therapeutic approach may result in greater reductions in distress. It has been suggested that in relationships where there are more than one mediator, treatment effectiveness should be maximised by utilising interventions that address each of these variables (Frazier *et al.,* 2004). These findings appear to provide support for clinical interventions that aim to address dysfunctional cognitions in addition to incorporating acceptance-based strategies that aim to undermine experiential avoidance.

In addition to the implications for direct clinical interventions with this client group, this study also has broader implications for mental health services in general and the systems that support individuals with psychosis. The influence of the recovery model has gone some way to challenging the view that psychotic symptoms should be the main focus of interventions, and necessarily have to be cured before an individual can achieve improvements in functional, psychological and social outcomes. However, the findings of this study also extend this change of ethos by supporting the concept of acceptance. Findings suggest that acceptance of psychotic symptoms may be more important in reducing distress than challenging negative beliefs about the self or the experience of psychosis. Multidisciplinary teams, families, and service user groups, may benefit from encouraging individuals with psychosis to pursue valued behaviours despite the occurrence of psychotic symptoms, instead of struggling with the content and meaning of such experiences.

4.3 Theoretical implications

The objective of the current study was to further knowledge and understanding regarding psychological processes associated with distress in individuals who had experienced psychosis. Although affective symptoms have long been associated with psychotic disorders, Birchwood (2003) has commented that psychological research has neglected the importance of distress and emotional recovery within this population. The model presented in this study was shown to be relatively successful in accounting for the variance in distress therefore, the findings are considered an important addition to the knowledge base in this area.

Acceptance-based theories are increasingly emphasising the importance of an individual's relationship with their symptoms and internal experience in predicting distress (Chadwick, 2006). Experiential avoidance, or unwillingness to remain in contact with certain private experiences, has been implicated in various forms of psychopathology within a range of clinical populations (Chawla & Ostafin, 2007; Hayes, Strosahl, Wilson *et al.,* 2004). However, despite increasing attention within the empirical literature, research on experiential avoidance is still in its infancy. Therefore, research exploring the concept further is of significant theoretical interest.

Presenting and testing hypothesised models of relationships between variables can add important information to our understanding of factors, and increases the amount of knowledge that might be gained from exploring such factors independently. This study is unique in its integration of both acceptance-based concepts, such as experiential avoidance, and cognitive factors, such as schemas and beliefs, within the same model. The two approaches are seen to have theoretical and philosophical differences (Forsyth, Lejuez, Hawkins & Eifert, 1996; Wilson *et al.,* 1997), which perhaps have previously hindered the development of theoretical models integrating concepts from both traditions.

Cognitive therapy is based on the view that cognitions, in the form of attitudes, beliefs and schemas, are considered to be the source of maladaptive behaviour and affect (Beck *et al.,* 1979; Hayes & Wilson, 1995; Wilson *et al.,* 1997). Interventions involve attempts to modify the form, frequency, and intensity of various hypothesised dysfunctional cognitions (Beck *et al.,* 1979; Hayes & Wilson, 1995; Wilson *et al.,*

1997). The assumption of cognitive therapy is that "if the therapist gets the patient to think or feel differently, they will act differently" (Forsyth *et al.,* 1996, p.373).

Behavioural approaches, on the other hand, have been resistant to the concept of cognitive causality (Forsyth *et al.,* 1996; Hayes & Wilson, 1995; Wilson *et al.,* 1997). Although acknowledging the importance of cognition in regulating behaviour, the role is not seen as causal (Forsyth *et al.,* 1996; Hayes & Wilson, 1995; Wilson *et al.,* 1997). From a behaviour analytical viewpoint, thoughts and feelings do not cause behaviour, except as regulated by context (Hayes *et al.,* 2006). Therefore, changing the context that causally links these psychological domains is central. Acceptance strategies have been said to emerge from a behaviour analytic approach to cognition, and in particular ACT has been described as developing from this contextual behavioural understanding of private experiences (Wilson *et al.,* 1997).

These theoretical and philosophical differences between traditions, have led to differences in what should be targeted in therapy (Forsyth *et al.,* 1996). Behavioural approaches, instead of attempting to eliminate distressing thoughts or feelings, focus on altering the struggle with such experiences. Therefore, the goal becomes one of assisting the individual to engage in constructive behaviour despite what they think or feel (Forsyth *et al.,* 1996).

From the cognitive therapy perspective, modification of dysfunctional beliefs and schemas is viewed as central to reducing distress. However, component analysis studies of CBT for depression, have failed to find support for the importance of this cognitive change (Gortner, Gollan, Dobson & Jacobson, 1998; Jacobson *et al.,* 1996).

These component analysis studies have compared a complete CBT treatment with interventions focused exclusively on its two major components, behavioural activation and behavioural activation with automatic thought modification (Gortner *et al.,* 1998; Jacobson *et al.,* 1996). These studies found that behavioural interventions were as effective in treating depression than interventions with added cognitive treatment strategies. This finding was consistent for both immediate treatment response (Jacobson *et al.,* 1996) and up to two years post-treatment (Gortner *et al.,* 1998).

Although findings from these component analysis studies raise important questions for the literature, they should be interpreted cautiously, and by no means represent conclusive evidence that cognitive change is ineffective. Cognitive therapy is supported by a large body of data, and the cognitive model has been highly influential in guiding developments within psychology. However, the findings do highlight questions regarding the mechanisms through which cognitive change may take place (Jacobson *et al.,* 1996), and whether cognitive change is always necessary in order to influence clinical improvement (Dobson & Khatri, 2000; Hayes, 2004).

Jacobson *et al.* (1996) highlight that behavioural treatments may be a more effective method of changing cognitions than explicit attempts to alter thoughts. Acceptance-based perspectives also consider that there are substantial problems with the cognitive therapy solution of verbally altering or challenging dysfunctional thoughts (Hayes, Strosahl, Bunting *et al.,* 2004). Such interventions may reinforce the idea that individuals must control thoughts and feelings, since these are interpreted as reasons for behavioural outcomes (Hayes *et al.,* 1999). Deliberate attempts to alter cognitions,

necessarily involve following a verbal rule that contains the thought that the individual is trying to avoid or change (Hayes *et al.,* 1999; Wilson *et al.,* 1997). Therefore, the resultant effect of this may actually be a strengthening of the original thought.

Acceptance-based approaches assume that cognitive change may not be necessary to alter the function of an individual's internal experiences. Instead, acceptance, or willingness to experience negatively evaluated private experiences is fostered through techniques that undermine experiential avoidance and cognitive fusion. From a cognitive therapy viewpoint modification of dysfunctional cognitions is central to producing change and clinical improvements in affect and behaviour. Cognitive therapy itself can be seen as creating a context of deliteralisation in which the believability of thoughts are reduced. Therefore, the process of cognitive change may allow a more defused perspective from internal experiences, and this in itself may lead to increased acceptance and willingness. It has been emphasised that the two change processes postulated by cognitive and acceptance-based approaches are not necessarily mutually exclusive (Wilson *et al.,* 1997).

The current study can be considered to add to the theoretical knowledge regarding content and process factors associated with distress in individuals with psychosis. By integrating cognitive and acceptance-based factors within this study, the relative contributions of cognitive content factors and process factors, such as experiential avoidance have been compared. The finding that experiential avoidance is more strongly related to distress than either negative self-schema or illness beliefs supports acceptance-based theories. The study also found that beliefs about psychosis and

negative self-schema were related to experiential avoidance. This finding could be interpreted as supporting cognitive theories, which suggest that increased acceptance may result from altering dysfunctional cognitions.

It has been suggested that the differences in perspectives between the two traditions regarding the causality of cognition may not be resolved by empirical research alone (Forsyth *et al.,* 1996; Hayes & Wilson, 1995; Wilson *et al.,* 1997). Rather such differences are viewed as matters of philosophical assumptions (Forsyth *et al.,* 1996; Hayes & Wilson, 1995). However, despite differences between the two traditions at the level of theory and philosophy, the two approaches have been said to have a large body of shared values, which provides potential for integration (Forsyth *et al.,* 1996; Wilson *et al.,* 1997). In fact, behavioural therapies have already been successfully integrated with cognitive therapy (CBT) despite differing philosophical assumptions (Dobson & Khatri, 2000). Therefore, there is reason to assume that the integration of cognitive and acceptance-based approaches could add to our theoretical understanding regarding processes of change. Wilson *et al.* (1997) stated that 'collaboration of efforts may allow us to direct our efforts at the development of the efficient and effective empirically based treatments that the modern era of mental health services surely requires' (p.60).

4.4 Strengths and limitations of study

4.4.1 Study design

This study employed a cross-sectional design, in which data were gathered from each participant at a single time point. Such designs are unable to infer the direction of

causality between variables. Therefore, conclusions regarding the causal nature of relationships in this study are limited. Although the model within this study proposed directional relationships, it could perhaps be equally likely that variables were related in the opposite direction than that proposed. For example, it may be possible that the presence of distress may cause greater experiential avoidance, or that negative beliefs about illness may cause negative self-schematic beliefs.

The proposed relationships within the model were based on underlying theory and previous research findings. Therefore, it may be considered reasonable to assume the direction of relationships based on such information. However, future research would benefit from investigating these variables within a longitudinal design, in order to determine more about the nature of causality and to explore how these relationships change in relation to one another.

This study formed part of a collaborative research design in which data were collected for the purpose of two concurrent research studies. This methodological approach adds to the strength of the project in a number of ways, most notably by increasing the possible sample size available.

Due to the nature of symptoms inherent in this population, individuals with psychosis can be a difficult client group to recruit to research studies. Individuals within this population can often be guarded, suspicious and mistrustful of engaging with research studies, especially studies which require them to answer questions regarding their psychotic experiences. Within such a population, some individuals may also have had experience of being admitted to hospital against their will, under Mental Health

legislation, or may be dissatisfied with their experiences of mental health services. Such experiences are likely to contribute to engagement difficulties and make individuals wary of participating in research that is connected with, or being carried out within, mental health services.

Individuals with psychosis are considered a vulnerable population and therefore, a number of ethical issues also contribute to difficulties in recruiting such participants to research studies. These difficulties include cognitive and emotional vulnerabilities often associated with this population, the presence of acute and intense distress, and concerns regarding capacity to consent.

Given the population of interest, by employing a collaborative design, and collecting data across two different geographical areas, the study has been able to expand the potential sample available and achieve a data set of substantial size.

4.4.2 Sample

This was a voluntary research study, and so participants were free to choose whether or not to participate. As with all study designs of this nature it is possible that a recruitment bias may have been present. Recruitment bias suggests that certain types of participant are more likely to agree to take part in studies than others, therefore creating a bias in results. However, as outlined, this is a common feature of many research designs, and it is difficult to overcome such an issue given the voluntary nature of studies. The sample in the current study were recruited from a variety of different services, including NHS and voluntary agencies, and individuals with varying levels of symptom severity and chronicity of psychosis. Due to this, the

chances of such a recruitment bias significantly influencing results was considered minimal.

The inclusion criteria for the current study was purposely designed to be encompassing of all individuals who had experienced psychotic symptoms, rather than focusing on specific diagnoses. This approach increases the generalisability of findings across this population, and is also consistent with a move towards symptom-based perspectives.

Although the heterogeneity of this sample is a strength with regard to generalisability, it is possible that this may also limit the findings. Previous studies have shown that the role of psychological factors may differ according to the specific type of psychotic symptom experienced. For example, Smith *et al.* (2006) found that persecutory delusions were more likely to be associated with negative evaluations of self and others, depression and low self-esteem. Whereas, grandiose delusions were associated with less negative self-evaluations, lower depression and higher self-esteem. Therefore, it is possible that results may have been influenced depending on the proportions of specific symptoms within the sample. Future research may benefit from replicating these findings whilst differentiating between different types of psychotic symptoms.

4.4.3 Procedure

Measures were administered to participants in an interview-style format, in which a researcher was present whilst the participant completed each of the questionnaires. This was done in case the participant had any questions, or needed support to

complete the questionnaires, and to ensure that all the measures were completed appropriately. This was considered a significant strength of the study as it reduced the occurrence of any missing or unusable data, and also reduced the burden on participants by offering them individual support.

All participants were offered assistance to complete the measures if required. This primarily consisted of the researcher reading the measures aloud to participants and recording their responses. Such assistance was offered due to the vulnerabilities present in this client group, and in order to reduce burden. However, all the measures used in the current study were designed as self-report measures and it may be possible that administering the measures in this way may have reduced their validity.

In addition, as a consequence of the collaborative study design, data were collected by two different researchers, one within each of the two different geographical areas. Therefore, it is possible that there may have been differences in the way each researcher administered the measures to participants, especially if extra assistance was required. It was considered possible that this may have then produced biases, and influenced the data collected. However, in an attempt to minimise this possibility, a standardised procedure was developed and followed by both researchers.

4.5 Future Research

Future research would benefit from investigating these factors within a longitudinal study design. Such research would further conclusions regarding the direction of causality between variables. Exploring how variables change in relation to one

another would also be of clinical relevance, as this would help inform therapeutic interventions.

It would also be of clinical and theoretical interest to replicate this study whilst differentiating between specific types of psychotic symptoms, and also investigating the influence of symptom severity on some of these factors and interrelationships.

Further studies exploring relationships between cognitive and acceptance-based factors would also be of interest. In particular, examining these factors in relation to the occurrence of valued behaviour. Cognitive and acceptance-based theories differ in their view of the processes that influence adaptive, constructive behaviour. Cognitive approaches view dysfunctional cognitions as an obstruction to the occurrence of constructive behaviour, whereas acceptance-based approaches address experiential avoidance as a process that diminishes valued behaviour. Therefore, comparing the relative influence of cognitions and experiential avoidance on valued behaviour could have significant clinical and theoretical implications.

4.6 Overall summary and conclusions

A number of significant direct and indirect relationships were found between the variables of negative self-schema, illness beliefs, experiential avoidance and psychological distress. The model presented appears to be modestly successful in accounting for the variance in the hypothesised relationships. Distress was significantly related to all three variables, but was most strongly associated with experiential avoidance. This suggests that experiential avoidance may have an

important role with respect to influencing levels of distress amongst individuals with psychosis.

There are a number of limitations to the current study, and it is important to give appropriate consideration to these when interpreting the findings. However, there are also a number of strengths of the study, such as the collaborative design, substantial sample size and heterogeneity of sample. These strengths contribute to the generalisability of findings.

Findings from this study have important clinical implications, as distress is increasingly viewed as a central therapeutic outcome, rather than symptom severity. Results appear to support the use of both cognitive therapy and acceptance-based approaches with this client group. It is suggested that reductions in distress may be maximised if strategies from both approaches are utilised within the same intervention. Findings may also have implications for the wider systems that support individuals with psychosis, as it is suggested that an ethos which supports acceptance of psychotic symptoms may be more important in reducing distress than challenging negative beliefs about the self or the experience of psychosis.

This study contributes to the knowledge base regarding factors associated with distress in individuals with psychosis, and also adds to the growing literature on experiential avoidance. It is unique in that it incorporates both acceptance-based concepts and cognitive factors within the same model. Theoretical and philosophical differences exist between the two approaches, which have led to differences in what should be targeted in therapy. Cognitive therapy views dysfunctional content of

thoughts as central to influencing distress, whereas acceptance-based approaches view experiential avoidance as a key process in this outcome. The current study can be considered to add to the theoretical knowledge regarding content and process factors associated with distress in individuals with psychosis. By integrating cognitive and acceptance-based factors within the same model, the relative contributions of cognitive content factors and process factors, such as experiential avoidance have been able to be compared.

Future studies would benefit from developing further models examining the relationships between cognitive and acceptance-based factors.

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APPENDICES

Appendix 1 – Measures

Brief Core Schema Scales (BCSS)

Personal Beliefs about Illness Questionnaire-Revised (PBIQ-R)

Acceptance and Action Questionnaire-II (AAQ-II)

Clinical Outcomes in Routine Evaluation outcome measure (CORE)

The Brief Core Schema Scales: beliefs about self and others

This questionnaire lists beliefs that people can hold about themselves and other people. Please indicate whether you hold each belief (NO or YES). If you hold the belief then please indicate how strongly you hold it by circling a number (1-4). Try to judge the beliefs on how you have generally, over time, viewed yourself and others. Do not spend too long on each belief. There are no right or wrong answers and the first response to each belief is often the most accurate.

				Believe it slightly	Believe it moderately	Believe it very much	Believe it totally
MYSELF							
I am unloved	NO	YES	→	1	2	3	4
I am worthless	NO	YES	→	1	2	3	4
I am weak	NO	YES	→	1	2	3	4
I am vulnerable	NO	YES	→	1	2	3	4
I am bad	NO	YES	→	1	2	3	4
I am a failure	NO	YES	→	1	2	3	4
I am respected	NO	YES	→	1	2	3	4
I am valuable	NO	YES	→	1	2	3	4
I am talented	NO	YES	→	1	2	3	4
I am successful	NO	YES	→	1	2	3	4
I am good	NO	YES	→	1	2	3	4
I am interesting	NO	YES	→	1	2	3	4
OTHERS							
Other people are hostile	NO	YES	→	1	2	3	4
Other people are harsh	NO	YES	→	1	2	3	4
Other people are unforgiving	NO	YES	→	1	2	3	4
Other people are bad	NO	YES	→	1	2	3	4
Other people are devious	NO	YES	→	1	2	3	4
Other people are nasty	NO	YES	→	1	2	3	4
Other people are fair	NO	YES	→	1	2	3	4
Other people are good	NO	YES	→	1	2	3	4
Other people are trustworthy	NO	YES	→	1	2	3	4
Other people are accepting	NO	YES	→	1	2	3	4
Other people are supportive	NO	YES	→	1	2	3	4
Other people are truthful	NO	YES	→	1	2	3	4

Personal Beliefs about Illness Questionnaire-revised (PBIQ-R)

Please tick the following as they apply to you:

SD = Strongly disagree
D = Disagree
A = Agree
SA = Strongly agree

		SD	D	A	SA
1	I will always need to be cared for by professional medical staff.				
2	My illness frightens me.				
3	I can talk to most people about my illness.				
4	I am capable of very little as a result of my illness.				
5	Because of my illness I have to rely on psychiatric services.				
6	My illness stops me doing the things I want to do.				
7	I find it difficult to cope with my current symptoms.				
8	I am the same person I was before my illness.				
9	I know when I'm relapsing but I can't do anything about it.				
10	My illness is a judgement on me.				
11	I am powerless to influence or control my illness.				
12	My illness stops me getting on with things I want to do.				
13	Society needs to keep people with my illness apart from everyone else.				
14	I feel excluded because of my illness.				
15	I am embarrassed by my illness.				
16	My illness is too delicate/brittle for me to work or keep a job.				
17	I am ashamed about my illness.				
18	Because of my illness I don't fit in.				
19	I have changed for the worse because of my illness.				
20	I can get on with others as well as I used to.				
21	My illness prevents me from having friends and relationships.				
22	My illness prevents me from planning for my future.				
23	My relationship with my friends has changed for the worse.				
24	I feel an outsider because of my illness.				
25	I am intimidated by my illness.				
26	I feel trapped by my illness.				
27	Because of my illness others see me as fragile or weak.				
28	I have the same goals now as I had before my illness.				
29	Others look down on me because of my illness.				

AAQ-II

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
never true	very seldom true	seldom true	sometimes true	frequently true	almost always true	always true

1.	Its OK if I remember something unpleasant.	1	2	3	4	5	6	7
2.	My painful experiences and memories make it difficult for me to live a life that I would value.	1	2	3	4	5	6	7
3.	I'm afraid of my feelings.	1	2	3	4	5	6	7
4.	I worry about not being able to control my worries and feelings.	1	2	3	4	5	6	7
5.	My painful memories prevent me from having a fulfilling life.	1	2	3	4	5	6	7
6.	I am in control of my life.	1	2	3	4	5	6	7
7.	Emotions cause problems in my life.	1	2	3	4	5	6	7
8.	It seems like most people are handling their lives better than I am.	1	2	3	4	5	6	7
9.	Worries get in the way of my success.	1	2	3	4	5	6	7
10.	My thoughts and feelings do not get in the way of how I want to live my life.	1	2	3	4	5	6	7

CLINICAL OUTCOMES in ROUTINE EVALUATION

OUTCOME MEASURE

Site ID

letters only | numbers only

Client ID

Therapist ID | numbers only (1) | numbers only (2)

Sub codes

D D / M M / Y Y Y Y

Date form given

Age

Male

Female

Stage Completed

S Screening
R Referral
A Assessment
F First Therapy Session
P Pre-therapy (unspecified)
D During Therapy
L Last therapy session
X Follow up 1
Y Follow up 2

Stage

Episode

IMPORTANT - PLEASE READ THIS FIRST

This form has 34 statements about how you have been OVER THE LAST WEEK.
Please read each statement and think how often you felt that way last week.
Then tick the box which is closest to this.
Please use a dark pen (not pencil) and tick clearly within the boxes.

	Over the last week	Not at all	Only Occasionally	Sometimes	Often	Most or all the time	OFFICE USE ONLY
1	I have felt terribly alone and isolated	0	1	2	3	4	F
2	I have felt tense, anxious or nervous	0	1	2	3	4	P
3	I have felt I have someone to turn to for support when needed	4	3	2	1	0	F
4	I have felt O.K. about myself	4	3	2	1	0	W
5	I have felt totally lacking in energy and enthusiasm	0	1	2	3	4	P
6	I have been physically violent to others	0	1	2	3	4	R
7	I have felt able to cope when things go wrong	4	3	2	1	0	F
8	I have been troubled by aches, pains or other physical problems	0	1	2	3	4	P
9	I have thought of hurting myself	0	1	2	3	4	R
10	Talking to people has felt too much for me	0	1	2	3	4	F
11	Tension and anxiety have prevented me doing important things	0	1	2	3	4	P
12	I have been happy with the things I have done.	4	3	2	1	0	F
13	I have been disturbed by unwanted thoughts and feelings	0	1	2	3	4	P
14	I have felt like crying	0	1	2	3	4	W

Please turn over

Over the last week

		Not at all	Only Occasionally	Sometimes	Often	Most or all the time	OFFICE USE ONLY
15	I have felt panic or terror	0	1	2	3	4	P
16	I made plans to end my life	0	1	2	3	4	R
17	I have felt overwhelmed by my problems	0	1	2	3	4	W
18	I have had difficulty getting to sleep or staying asleep	0	1	2	3	4	P
19	I have felt warmth or affection for someone	4	3	2	1	0	F
20	My problems have been impossible to put to one side	0	1	2	3	4	P
21	I have been able to do most things I needed to	4	3	2	1	0	F
22	I have threatened or intimidated another person	0	1	2	3	4	R
23	I have felt despairing or hopeless	0	1	2	3	4	P
24	I have thought it would be better if I were dead	0	1	2	3	4	R
25	I have felt criticised by other people	0	1	2	3	4	F
26	I have thought I have no friends	0	1	2	3	4	F
27	I have felt unhappy	0	1	2	3	4	P
28	Unwanted images or memories have been distressing me	0	1	2	3	4	P
29	I have been irritable when with other people	0	1	2	3	4	F
30	I have thought I am to blame for my problems and difficulties	0	1	2	3	4	P
31	I have felt optimistic about my future	4	3	2	1	0	W
32	I have achieved the things I wanted to	4	3	2	1	0	F
33	I have felt humiliated or shamed by other people	0	1	2	3	4	F
34	I have hurt myself physically or taken dangerous risks with my health	0	1	2	3	4	R

THANK YOU FOR YOUR TIME IN COMPLETING THIS QUESTIONNAIRE

	(W)	(P)	(F)	(R)	All items	All minus R
Total Scores						
Mean Scores (Total score for each dimension divided by number of items completed in that dimension)						

Appendix 2 – Participant information sheet

NHS
Forth Valley

Participant Information Sheet

Title: Does Acceptance Affect Distress in a Psychosis Population?

You have been asked to participate in the above research study. Before you decide whether or not you wish to take part, it is important for you to understand why the research is being undertaken and what it will involve. Please take time to read the following information carefully. You may decide to discuss it with others. If there is anything that is unclear, or if you would like more information, please do not hesitate to ask the researcher.

Purpose of the study

The aim of this study is to investigate how acceptance affects levels of emotional distress and valued living (whether you behave in ways that are consistent with what you value in life) in individuals who have experienced symptoms of psychosis (hallucinations, delusional beliefs and/or thought disturbances).

Do I have to take part?

Participation in this study is entirely voluntary and you can decide whether or not you wish to take part. If you decide **not** to take part, this decision will not affect the treatment or standard of care you receive in any way. If you decide you would like to take part, you will be asked to sign a consent form, however once you have signed this you are still free to withdraw at any time.

What will happen if I agree to take part?

The researcher will arrange a time to meet with you, during which they will ask you to complete some questionnaires about your experiences, beliefs and feelings. This should take approximately 30-45 minutes. Completing the questionnaires may involve thinking about some difficult experiences, so it is possible that you may find some questions upsetting – if you do feel uncomfortable you will be able to take a break or discontinue. If the researcher is concerned about your level of distress as a result of taking part in this study, they may contact your keyworker or other relevant health care professional, so that you may receive additional support.

Will my responses be confidential?

Yes. All the information you provide will be kept confidential. The questionnaires will be anonymous so your name will not appear on any of your responses, and questionnaires will not be entered in to your medical notes. All information obtained in the study will be stored securely in the Adult Clinical Psychology Department at Falkirk & District Royal Infirmary where it will be kept for a period of two years.

What will happen to the results of this study?

Data collected in this study will be analysed in two separate projects – one within NHS Forth Valley and one within NHS Fife – all data will be completely anonymous so your identity will not be known to the other health board. Results will be submitted to the University of Edinburgh in part fulfilment of the researchers' doctorate in Clinical Psychology and will also be circulated at a local level within NHS Forth Valley and NHS Fife. Findings may be submitted for publication in an academic journal or presented at relevant conferences, however no identifying information regarding participants will be included in any reports or presentations. If you are interested in receiving information about the results, you will be able to obtain a summary report from your keyworker once the study has been completed.

Has the proposed study been reviewed by an ethics committee?

The Tayside Committee on Medical Research Ethics, which has responsibility for scrutinising proposals for medical research on humans, has examined this research proposal and has raised no objections from the point of view of medical ethics.

Further information

If you require further information about this study, or have any questions or concerns, you can contact the researcher, Rebecca Lower, (Trainee Clinical Psychologist) on telephone number 01324 614347. If at any time, you wish to make a complaint about any aspect of this research study, you can do so by contacting NHS Forth Valley, Acute Service Headquarters, Westburn Avenue, Falkirk FK1 5SU and following the normal NHS complaints procedure.

Appendix 3 – Participant referral form

Referral to Psychosis Research Project

NHS Forth Valley

Client details

Name: _____

Address *(or ward if current inpatient)*: _____

_____

_____

Telephone number: _____

Diagnosis *(if known)*: _____

Referrer details

Name: _____

Discipline: _____

Telephone number: _____

Name of psychiatrist *(if not referrer)*: _____

- **Have you discussed the research project with the potential participant?**

  Yes ☐ **No** ☐

- **Have you provided the potential participant with an information sheet regarding the research?**

  Yes ☐ **No** ☐

- **Is the client agreeable to the researcher contacting them directly regarding participation in the research?**

  Yes ☐ **No** ☐

Are there any risk factors or reasons why a lone home visit should not be carried out with this patient?
If yes, please specify: _____

_____

_____

Please return the completed form to:
Rebecca Lower, Adult Clinical Psychology Department, FDRI, FK1 5QE

Appendix 4 – Participant consent form

Participant identification number:

NHS
Forth Valley

CONSENT FORM

Title of study: Does Acceptance Affect Distress in a Psychosis Population?

Researchers:

Rebecca Lower (Trainee Clinical Psychologist, NHS Forth Valley)

Laura Weinberg (Trainee Clinical Psychologist, NHS Fife)

1. I confirm that I have read and understand the participant information sheet dated 18.09.07 (version 4) for the above study. ☐
2. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
3. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my health care being affected. ☐
4. I understand that if participation in this study causes me distress, the researcher may contact my keyworker or other relevant health care professional. ☐
5. I agree to take part in the above study. ☐

Name of participant	Date	Signature
Name of researcher	Date	Signature

Appendix 5 – Ethics approval

Ethics committee approval letter

Ethics committee letter approving amendment to participant information sheet

Research and Development approval letter

NHS Fife NHS Forth Valley NHS Tayside

Fife, Forth Valley & Tayside Research Ethics Service

Tayside Committee on Medical Research Ethics A
Research Ethics Office
Level 9
Ninewells Hospital & Medical School
DUNDEE
DD1 9SY

Ms Rebecca Lower, Trainee Clinical Psychologist
Forth Valley NHS / University of Edinburgh
Adult Clinical Psychology Department
Falkirk & District Royal Infirmary
Major's Loan
FALKIRK FK1 5QE

Date: 10 September 2007
Your Ref:
Our Ref: FB/RH/**07/S1401/98**
Enquiries to: Miss Fiona Bain
Extension: Ninewells extension 32701
Direct Line: 01382 632701
Email: fionabain@nhs.net

Dear Ms Lower

Full title of study: **The relationship between self-schema, illness beliefs, experiential avoidance and psychological distress in individuals with psychosis.**

REC reference number: **07/S1401/98**

The Research Ethics Committee reviewed the above application at the meeting held on 31 August 2007. Thank you for attending to discuss the study.

Ethical opinion

Members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation.

You also should update the Participant Information Sheet, and provide me with a revised copy (version 4, new date), as follows.

1. State where and for how long the study data will be kept, eg.:

   All information obtained in the study will be stored securely in the Adult Clinical Psychology Department at Falkirk & District Royal Infirmary where it will be kept for a period of two years.

2. State that the research has been reviewed by this ethics committee, as follows.

   The Tayside Committee on Medical Research Ethics, which has responsibility for scrutinising proposals for medical research on humans, has examined this proposal and has raised no objections from the point of view of medical ethics.

Ethical review of research sites

We have not yet had the outcome of any Site Specific Assessment (SSA) for this application. We will notify you in due course of the Fife and Forth Valley Research Ethics Committee's decision for your SSA.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Application	5.4	31 July 2007
Investigator CV		24 July 2007
Protocol	6	03 July 2007
Covering Letter		30 July 2007
Letter from Sponsor		01 August 2007
Compensation Arrangements – Liability Insurance		28 July 2006
Compensation Arrangements		20 July 2007
Questionnaire: AAQ-2		
Questionnaire: Personal Beliefs about Illness	PBIQ	
Questionnaire: Clinical Outcomes Routine Evaluation	CORE	
Questionnaire: The Brief Core Schema Scales		
Questionnaire: Psychotic Symptom Rating Scales		
GP/Consultant Information Sheets	2	31 July 2007
Participant Information Sheet	3	15 July 2007
Participant Consent Form	3	15 July 2007
Demographic Information		
Valued Living Questionnaire	5-20-02	
Letter from Supervisor		06 July 2007
CV Dr Sean Harper		15 July 2007

R&D approval

The study should not commence at any NHS site until the local Principal Investigator has obtained final approval from the R&D office for the relevant NHS care organisation.

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

07/S1401/98 Please quote this number on all correspondence

Yours sincerely

Dr Fergus Daly
Chair

NHS Fife | NHS Forth Valley | NHS Tayside

Fife, Forth Valley & Tayside Research Ethics Service

Tayside Committee on Medical Research Ethics A
Research Ethics Office
Level 9
Ninewells Hospital & Medical School
DUNDEE
DD1 9SY

Ms Rebecca Lower, Trainee Clinical Psychologist
Forth Valley NHS / University of Edinburgh
Adult Clinical Psychology Department
Falkirk & District Royal Infirmary
Major's Loan
FALKIRK FK1 5QE

Date: 24 September 2007
Your Ref:
Our Ref: FB/RH/**07/S1401/98**
Enquiries to: Miss Fiona Bain
Extension: Ninewells extension 32701
Direct Line: 01382 632701
Email: fionabain@nhs.net

Dear Ms Lower

Full title of study: **The relationship between self-schema, illness beliefs, experiential avoidance and psychological distress in individuals with psychosis.**

REC reference number: **07/S1401/98**

The Research Ethics Committee reviewed the above application at the meeting held on 31 August 2007. Thank you for your recent communication, which was received on 21 September 2007 and included the following document:

Document	Version	Date
Covering Letter		18 September 2007
Participant Information Sheet	4	18 September 2007

On behalf of the Research Ethics Committee I am pleased to reaffirm the favourable opinion given to this application.

07/S1401/98 **Please quote this number on all correspondence**

Yours sincerely

Dr Fergus Daly
Chair

Copy to: Marise Bucukoglu
Clinical Trials & Research Governance Manager
The University of Edinburgh
47 Little France Crescent
EDINBURGH
EH16 4TJ

11 OCT 2007

Medical Directorate

Carseview House
Castle Business Park
Stirling
FK9 4SW

Telephone (01786) 447488
Fax
www.show.scot.nhs.uk/nhsfv

NHS
Forth Valley

Ms Rebecca Lower
Trainee Clinical Psychologist
NHS Forth Valley
Adult Clinical Psychology Department
Falkirk and District Royal Infirmary
Major's Loan,
FALKIRK FK1 5QE

Date: 9 October 2007
Your Ref:
Our Ref: GD/ig
Enquiries to: Irene Graham
Direct Line: (01786) 457293
Fax:
Email: Irene.Graham@nhs.net

Dear Ms Lower

Following approval from the Tayside Committee on Medical Research Ethics A on 24 September 2007 I am pleased to confirm that I formally gave Management approval to 'The relationship between self schema, illness beliefs, experiential avoidance and psychological distress in individuals with psychosis' on 9 October 2007.

The Research Governance Framework for Health and Community Care applies to all research undertaken within NHS Forth Valley. The Framework sets out standards and details the key responsibilities of key individuals, including the research sponsor, principle investigator, other researchers and supervisors of students undertaking research.

All those involved in the project will be required to work within accepted guidelines of research governance and IHC-GCP guidelines.

A copy of the Framework and links to background annex material can be accessed via the Chief Scientist Office website at http://www.show.scot.nhs.uk/cso/ResGov/ResGov.htm and ICH-GEP guidelines may be found at http://www.ich.org/pdf/ICH/eb.pdf

You/

Continued

NHS
Forth Valley

You will be required to provide a progress report on your study at the end of the study. We will also require a copy of the final report, when available. You will also be asked annually to complete a form on the activity taking place in relation to the study within Forth Valley, for each financial year during which it is active here. The appropriate forms will be provided to you by the Research and Development office when they are needed.

Yours sincerely

Gareth Davies
Medical Director

c.c. Dr Sean Harper, Clinical Psychologist, University of Edinburgh
Dr Theresa Houseman, Clinical Psychologist, Adult Clinical Psychology Department, FDRI, NHS Forth Valley